

MARINE REVIEW

VOL. XIX.

Published every Thursday at 418-19 Perry-Payne Bldg., by the Marine Review Pub. Co.

CLEVELAND, O., MAY 18, 1899.

Entered at Cleveland Postoffice as second class matter.

No. 20

HANNA-PAYNE BILL WILL PASS.

COMMISSIONER OF NAVIGATION CHAMBERLAIN EXPRESSES THE UTMOST CONFIDENCE THAT THE SHIP SUBSIDY MEASURE WILL BE FAVORABLY ACTED UPON BY THE NEXT CONGRESS.

Washington, May 18.—Mr. Eugene T. Chamberlain, United States commissioner of navigation, is more than confident of the passage of the Hanna-Payne bill at the next session of congress. When a representative of the Review asked him if he had noted Senator Hanna's declaration in the Review that while he would not predict its fate he was certain the bill would come up early in the session, Mr. Chamberlain said: "Yes and that statement from Mr. Hanna means that the bill will pass. I am almost ready to believe that the bill would pass in any event if it came up, but if the junior senator from Ohio is to take up and push this measure, you may depend upon it that it will pass. When Mr. Hanna takes hold of a matter it generally moves right along. Down here at Washington we have the greatest respect for his tireless energy."

"There will, of course, be considerable opposition to the bill, but I do not believe it will be sufficient to even temporarily embarrass its friends. The bill would, in my opinion, have passed at the last session had it not been that the Philippine question, the army investigation and other matters came up and prevented its consideration. Only the advent of similar conditions can prevent it getting through at the next session. I do not imagine that the bill will be amended to any great extent. It is universally recognized that it is not only far and away the best measure of the kind that has ever been offered, but it seems to be just about as perfect as it is possible to make such a bill. Fully three years work is represented by this bill, which has been most carefully drafted, and it embodies the best judgment of the leading men identified with shipping affairs. Such men as Harvey D. Goulder of Cleveland, than whom there is not a better admiralty lawyer in America, President Firth of the Lake Carriers' Association and President Griscom of the International Navigation Co. were active in its formulation, and the bill after it was drawn up was sent to practically everybody in maritime circles for comment and criticism. I should perhaps say, in passing, that I do not know anything about the clause relative to fishermen, but I understand that the congressman who represents the Gloucester, Mass., district is now giving that subject his attention."

When asked whether in his opinion the action of the British admiralty in withdrawing temporarily the allowance that has for some time past been granted to the Cunard and other companies would have any effect upon the trend of discussion on the Hanna-Payne bill, Mr. Chamberlain said: "Oh no, the statement of the first lord of the admiralty that the subsidies have only been withdrawn temporarily would tend to controvert any impression that it might have been sought to spread. We, as advocates of the Hanna-Payne bill, do not care whether Great Britain lessens or increases her subsidies or the number of vessels to which she allows them, so long as she endorses the general plan by her continuance of the system."

Mr. Chamberlain said he did not know of any projected steamship lines that might be held in abeyance pending the passage of the bill, but he did not doubt, he said, that passage of the measure would stimulate activity in shipping very materially. He is enthusiastic over the beneficial effects experienced by the American merchant marine as a result of restriction of the commerce of Porto Rico and the Hawaiian islands to American vessels. Congress will undoubtedly make permanent provision, Mr. Chamberlain says, for such restriction, which is at present authorized only by presidential order. The suspension of the restriction in the case of Porto Rico was, Mr. Chamberlain explained, only temporary, and was made simply to facilitate the exportation of some sugar, the movement of which would be greatly retarded by hard and fast rules. Of course no such measures will be possible in the case of Cuba. The policy of the administration with reference to the island is well evidenced by the action of the officials at Washington in providing a new flag for the island, for use exclusively by Cuban-owned vessels engaged in the coasting trade. To give these vessels the American flag would savor of annexation, while to allow them the use of the flag of the Cuban revolution would amount to a recognition of the insurgent government, and so the coasting vessels are to temporarily fly an ensign consisting merely of a blue field with a white union.

Mr. Chamberlain was asked whether in his opinion any action would be taken with reference to the complaints of foreign ship owners regarding abuses in the shipping of seamen, etc. He was of the opinion nothing would be done pending a trial of the bill passed at the last session of congress and designed to remedy many of these very abuses. "It takes at least five or six months," he said, "for a measure of this kind to work out the benefits that are expected from it, and I should certainly be in favor of awaiting an opportunity to see what this bill will do before considering any further legislation."

Two new lines of steamships between Norfolk, Va., and Europe will be in operation beginning Sept. 15 next. The North American Transport Co. (Simpson, Spence & Young), and the Johnston Blue line (William Johnston & Co., Limited) will operate the new lines in connection with the various railways entering Norfolk. The Johnston line will put on three boats monthly to Liverpool and one boat monthly to Rotterdam, the North American Transport Co. will put on three boats monthly to Hamburg, two boats monthly to London and one boat monthly to Rotterdam. A passenger service may be added later.

CONSOLIDATED SHIP YARDS.

It is more than probable that negotiations now under way will result in the Wheeler ship yard at West Bay City being purchased by the American Ship Building Co. Plans for a lease of the Union Dry Dock Co. plant at Buffalo are also progressing, so that it would seem that the Craig yard at Toledo will shortly be the only works outside the consolidation. Mr. John Craig says that he regards the big company as a very strong organization, and has "all along approved of the consolidation as a good thing." If they are to allow him at his Toledo plant, which makes no pretensions of great undertakings, to go along with a fair number of contracts at his prices, he will be fully satisfied to remain out. If the sale of the Wheeler plant is made on the terms now proposed by Mr. Wheeler, who is in full possession of the property, he will have cleaned up his affairs in a manner far more satisfactory than could possibly have been expected a short time ago.

A large force of workmen has been engaged for several days past in arranging headquarters for the consolidated companies in the building on the Superior street viaduct, Cleveland, which was formerly occupied by the Cleveland Ship Building Co. Mr. Wetmore, secretary and treasurer, has been hard at work in Cleveland since officers were elected at the final meeting of the projectors of the new company in New York. Everybody who has met him in business dealings under the new order of affairs seems to be impressed with the fact that he is a man of large affairs and executive ability, and that he will be secretary and treasurer of the company in all that the terms imply. All affairs of the three concerns at Cleveland—Globe Iron Works Co., Cleveland Ship Building Co. and Ship Owners' Dry Dock Co.—will be conducted under the name of the parent organization, American Ship Building Co., but the Detroit works will be known as the Detroit Ship Building Co. and the works at West Superior as the Superior Shipbuilding Co., while the Chicago Ship Building Co. and the Milwaukee Dry Dock Co. will retain their old names. It is now settled that Mr. W. I. Babcock will remain as manager at Chicago and that W. E. Ford will be in charge of the West Superior works. The several establishments at Detroit will be under the immediate direction of Mr. A. McVittie, with Mr. C. B. Calder as principal assistant. There seems to be nothing definite as yet regarding a chief naval architect or chief engineer. The matter of General Manager Wallace's assistants in the Cleveland works also appears indefinite, due very probably to the fact that there has in reality been nothing done regarding management further than the assurances of positions above referred to, pending completion of the contracts in hand.

Mr. Gilbert N. McMillan, who made many friends as secretary of the Detroit Dry Dock Co., has already practically stepped out, but under circumstances entirely agreeable to himself and with the best of feeling towards everybody connected with the consolidation. He made no plans for a place in the new company while the consolidation was under way, and there is therefore no disappointment on his part. He is now engaged in settling up affairs of the old companies in Detroit and will shortly leave for an extended European trip.

THE NEW MORSE SHIP YARD.

None of the topics of discussion in eastern shipping and ship building circles are receiving, just at present, anything like the attention that is being given to the new ship yard to be established in the near future by Henry G. Morse of Philadelphia, formerly president of the Harlan & Hollingsworth Co., and his associates. Interest in the new ship yard is probably not prompted as much by the magnitude of the project as by reason of the fact that seemingly very few of the men who have invested heavily in the stock of the new concern have had any great amount of practical experience in ship building. Mr. Morse states that the location of the plant has been determined upon but will not be announced for some time. The general impression among those best qualified to judge is that Camden on the Delaware river is the site chosen. The selection was left to Mr. Morse individually by the board of directors. The Review learns from an unofficial source that the gentleman who it has all along been anticipated would act as superintendent of the new plant died recently and that no determination has yet been reached as to his successor. It is understood that Mr. Morse had at one time hopes of interesting either Frank E. Kirby of the Detroit Ship Building Co. or F. W. Wheeler, of West Bay City, Mich., but both of these builders are now out of consideration, Mr. Wheeler having gotten his affairs sufficiently straightened out to permit of a resumption of work at his ship yard, and Mr. Kirby having declared his preference to act independently or at least without any permanent affiliation with a ship yard. The fact that Mr. W. I. Babcock, of the Chicago Ship Building Co., accompanied Mr. Morse to the yacht launch at the Roach ship yard at Chester, Pa., last week, caused some comment, but it seems quite well settled that Mr. Babcock will continue in charge of the Chicago yard for the American Ship Building Co.

The steamships Matteawan and Miami, lately running between New York and Galveston and forming the Lone Star Line, have been sold through the agency of Samuel Holmes of New York City to two separate companies, and will leave for the Pacific coast as soon as they finish their present engagements in the New York and Galveston service, which will be on concluding their present voyages. The selling price was \$500,000. These steamships are classed 100 A1 at Lloyds. They carry 5,000 tons each.

Work on the torpedo boat Goldsborough is progressing rapidly at the Wolff & Zwicker Iron Works, Portland, Ore., and it is expected that the vessel will be launched July 4.

A SUBMARINE PROBLEM

INTO THAT THE TORPEDO BOAT PLUNGER, BUILDING AT BALTIMORE, HAS VIRTUALLY RESOLVED ITSELF, BY REASON OF UNCERTAINTY AS TO ITS ULTIMATE DISPOSITION OR INDEED ITS COMPLETION—TOO MUCH MACHINERY FOR THE HULL—THE PROJECT AT A STANDSTILL.

Baltimore, May 16.—The fact has leaked out here that there is considerable doubt as to the date of completion of the submarine torpedo boat Plunger, building at the Columbian Iron Works, and it is generally agreed that the boat will never be accepted for service in the United States navy unless it is either entirely reconstructed or the contract so revised as to include some very radical modifications. The Plunger is building for the United States government, but the Columbian works is simply the sub-contractor for the Holland Submarine Torpedo Boat Co. of New York City. The construction of the vessel was authorized March 3, 1893, and the contract was signed March 13, 1895. The keel was laid June 23, 1896, and the vessel was launched August 7, 1897. The contract date of completion was March 13, 1898, but for many months now practically no work whatever has been done on the vessel, although a representative of the Holland company is still stationed at the works of the Columbian company. The last report of Chief Constructor Hichborn of the navy was to the effect that the Plunger was approximately seven-eighths completed.

It is admitted by those in official positions having to do with the construction of the vessel that she can never be made to fulfil requirements of the contract, for the reason that to attain the specified speed it would be necessary to occupy practically every bit of available space in the ship with machinery. It may appear strange, in view of a certain degree of success in Holland boats with which experiments have been made in the vicinity of New York harbor, that the Plunger, which is supposed to be modeled on about the same lines, should have proven so deficient. Explanation is found in the fact that the Plunger was designed some time before the construction of the boat now operated by the Holland company for experimental purposes. Indeed, it is said that experience gained through faults encountered in the government vessel enabled the company to provide improvements for later designs. Men who are connected in an executive capacity with the construction of the boat are, to use the expression of one of them, "sick of the whole thing." The hull has been completed for more than a year but to propel it at the rate of speed required by the government contract, it would be necessary to fill it so full of engines and dynamos and other apparatus that it would hardly be possible for one man to find room to work.

Just what is proposed to do toward a solution of the difficulty no one at the ship yard appears to know. It is said that the Holland company has already received a heavy proportion of the \$150,000 which constitutes the contract price of the vessel, although presumably the government is protected from loss by bond. There appears to be but two ways out of the difficulty. One would be found in the construction of a vessel of considerably greater dimensions than the Plunger, which is but 80 feet in length, with the purpose of providing room for the machinery necessary to meet requirements. This would, of course, mean the practical loss to the contractors of all the money spent on the Plunger, and would necessitate also another outlay of funds for the construction of practically a new vessel. The other solution—more favorable to the contractors—would be the consent of the government to a modification of the requirements, both as to speed and power. The navy department does not, however, seem to be concerning itself much with the vessel. An attaché of the department who has been detailed for the inspection work on the torpedo boat Tingley, which is also building at the Columbian works, is supposed to embrace among his duties the inspection of work on the Plunger, but this is a nonentity. Serious fault is found with the vessel for many reasons. The vessel is said to be almost inhabitable, lacking practically all accommodations for a crew, however small, even to the extent of the absence of a watercloset.

It is a significant fact that almost all the men who have had to do with the construction of the Plunger are unfavorable to submarine boats. One of them stated to your correspondent that although he had been down for two hours in Simon Lake's submarine boat, the Argonaut, he was not a believer in submarine navigation. He was of the opinion that the Lake boat was the best yet projected, for the reason that it was provided with a greater number of safeguards against disaster than any of the others, but he pointed, in support of his contentions, to the fact that all of the most progressive European nations have taken up submarine boats in various forms for a great number of years past, and in almost every instance they have discarded the whole question as impracticable.

In this connection it is interesting to note that the Lake boat has been taken from Baltimore to the Erie basin, New York, where she will be lengthened 20 feet and fitted in a manner so that it will be possible for her crew to live on her with some degree of comfort. Meanwhile, John P. Holland, the inventor of the Holland type of craft, has announced upon his return from Europe that the cabled reports that he went abroad to sell his submarine boat to the British government are incorrect as is also the statement that Capt. Jacques has gone to Russia on a similar mission. Mr. Holland admits that all the British engineers are opposed to the submarine boat but contends that it is because they know nothing whatever about it. He says that "their ignorance of such things is simply ridiculous," and seems to think that Great Britain would fare very badly should she become engaged in difficulties with France or some other nation alive to the advantages of submarine navigation. The chief fault which the American inventor finds with the Gustave Zede, the French boat, is its limited radius of 80 miles. He also says that the Holland boat now in commission has been thoroughly overhauled in accordance with the suggestions of United States naval experts.

PHILANTHROPISTS AND INVENTORS.

A CONSTANT STREAM OF THEM DESCENDS UPON THE UNITED STATES LIFE SAVING SERVICE, BUT ALL ARE TURNED OVER TO A SPECIAL BOARD.

Washington, D. C., May 17.—General Superintendent Kimball of the United States life saving service has many times had occasion to realize the enormity of the work taken off his shoulders by the organization within the service that is known as the board on life saving appliances, but never has it been brought home to him more forcefully as at present, on account of the general interest shown in wireless telegraphy. Although it might not suggest itself to most persons, the fact remains that there is not a department of the government, not even the war department, that is made the object of so much attention on the part of cranks and inventors of all kinds as the life saving service, and the experiments with wireless telegraphy and the published reports of its possibilities when utilized for life saving and light-house purposes seems to have induced an unusually prolific crop of ideas, whose promulgators, strange to say, almost invariably seek to pose as philanthropists, retired from business and having only one desire, that of serving their fellow mortals generally, but particularly those on ship board.

It may be remarked incidentally that officials of the life saving service have no considerable degree of confidence in the availability of wireless telegraphy so far as its utilization in their work is concerned, although the experiments now being conducted by the signal service are being watched attentively. Inventions along this same line have been offered to the life saving service and have invariably proven impracticable. On one occasion when experiments were made it was found impossible to do anything because an iron pier upon which the sending instrument was located served as an inductor for the current while on another occasion it was deflected when an iron ship passed between the two stations.

An old gentleman from Kentucky came into the office of the service the other day, and after classing himself in the philanthropic category stated that he had noticed in the papers that life savers had considerable trouble with the life lines burning when fired to a ship. As a remedy he displayed a sample of asbestos rope. He was dumbfounded when Superintendent Kimball picked it up and broke it with a slight movement of his hands, a contingency the old gentleman had entirely overlooked. Men with schemes for the utilization of kites and the firing of life lines from ships instead of from shore are periodical visitors. If they are satisfied with a brief explanation that such schemes are impracticable, because ship-wrecked sailors have other things to think of than trying to fly kites, all well and good, but if more persistent they are turned over to the tender mercies of the board of appliances, of which Prof. Peabody of the Boston Institute of Technology is president. One of the most aggressive of the inventors calling recently was a man who had in some manner gained the idea that lines after being fired across a vessel frequently slipped off. To remedy this he had devised a beautiful scheme, contemplating the use of a huge hook which it was proposed to attach to the vessel in distress.

SPLENDID TERMINAL FACILITIES.

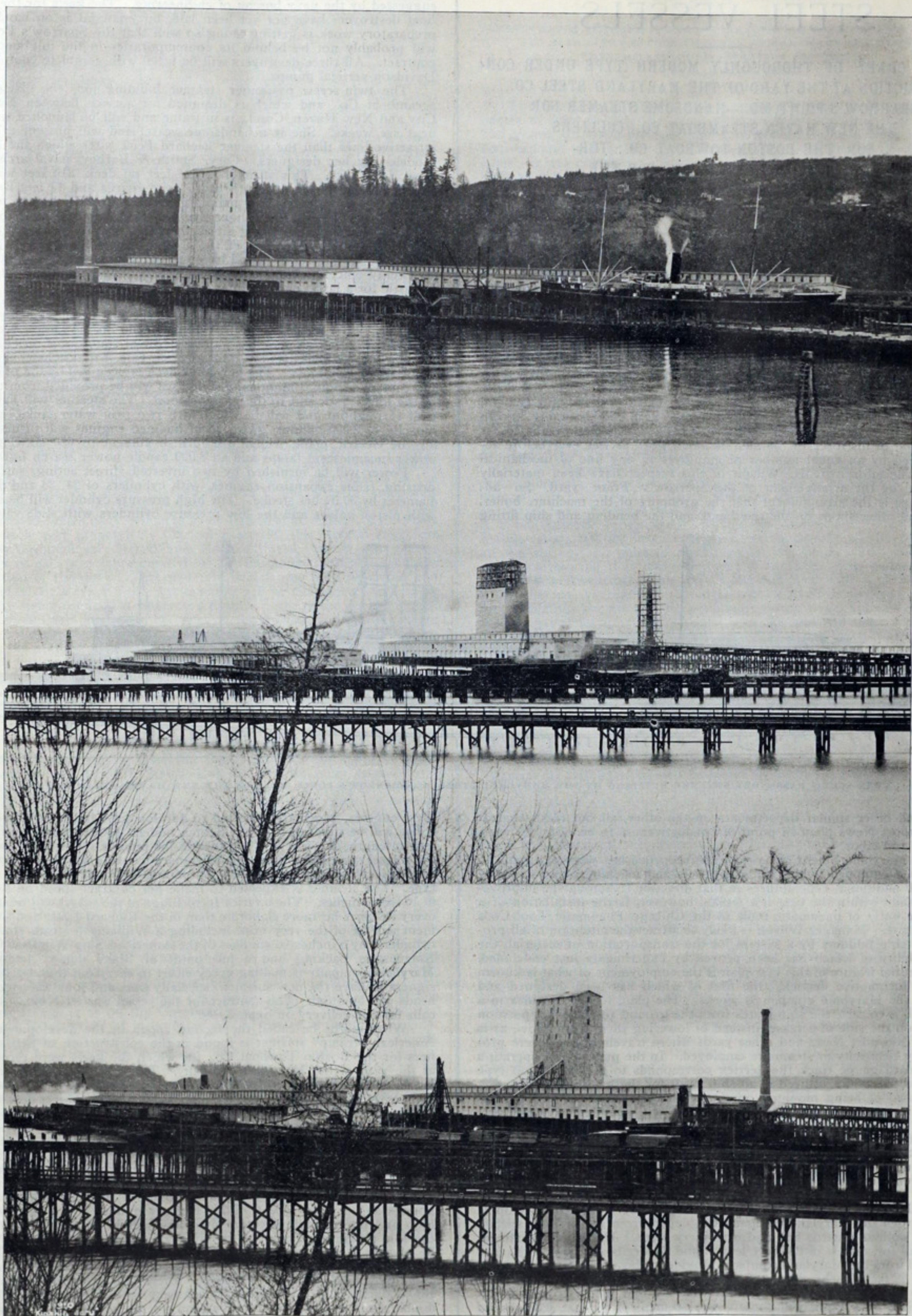
RECENT ACQUISITION OF THE GREAT NORTHERN RAILROAD AT SMITH COVE, NEAR SEATTLE, WASH.—DOCKS, WAREHOUSES AND ELEVATOR.

The Review presents herewith three views illustrating the recently constructed terminal facilities of the Great Northern railroad at Seattle, Wash. The completion of these terminals marks the consummation of plans that have been in process of formulation by President Hill of the Great Northern road during a period of more than twelve years. With extensive vessel interests on the great lakes and with 4,700 miles of railroad, all that is now needed to complete the whole great project of the northwestern railroad magnate is the establishment of a well equipped line of steamers on the Pacific, and there is every reason to believe that a few years, or perhaps even less, will see the accomplishment of this also. The completion of the docks, here illustrated, has been impatiently awaited by the shipping interests of Seattle which have been seriously inconvenienced many times during the past year when there have been in the harbor at one time from thirty to forty vessels, fully three-fourths of which were ocean steamers.

The formal opening of the new Great Northern docks took place upon the arrival, March 18, of the Nippon Yusen Kaisha steamer Kinshiu Maru from China and Japan. The slip of the new docks is 2,100 feet long, a length far in excess of any other on the Pacific coast, it not indeed of any on the Atlantic. It is 200 feet in width and is well nigh surrounded by the necessary houses for the transfer and storage of freight. A dozen ordinary ocean steamers can be accommodated at these docks at one time, allowance being made for five on either side and for two at the ends of the wharves. The width of the slip is sufficient for the passage of any vessel entering or clearing, even should other ships be tied up at the wharves on either side.

The warehouse and storage accommodations are adequate for any demands that may be made on them for a long time to come. On the south side of the slip is the main warehouse, a building 950 feet in length by 112 feet in width and containing 106,400 square feet of floor space. On the opposite or north side is the grain house, 504 by 212 feet in size and containing even greater floor area than the warehouse, while above this is the elevator 160 feet in height. The dredging contract connected with the construction of these docks and warehouses involved the movement of 450,000 cubic yards of earth and the depositing of it in the fills on either side. The harbor of Seattle is admirably fitted for the handling of an enormous shipping business and there can be no doubt that the development which has just been entered upon will be rapid in the extreme.

A carefully compiled estimate shows that there is now under construction at the yard of the Newport News Ship Building & Dry Dock Co. new vessels aggregating 115,035 tons, the value of which is \$18,580,000.



PUGET SOUND TERMINALS OF THE GREAT NORTHERN RAILWAY AT SEATTLE, WASH.

VIEWS OF DOCKS AND WAREHOUSES RECENTLY CONSTRUCTED FOR THE DEVELOPMENT OF COMMERCE ON THE PACIFIC.

STEEL VESSELS.

SEVEN CRAFT OF THOROUGHLY MODERN TYPE UNDER CONSTRUCTION AT THE YARD OF THE MARYLAND STEEL CO., SPARROW'S POINT, MD.—HANDSOME STEAMER FOR THE NEW HAVEN STEAMBOAT CO., COLLIERIES FOR THE BOSTON TOWBOAT CO., TORPEDO BOAT DESTROYERS FOR THE UNITED STATES NAVY, AND A SEA-GOING TUG.

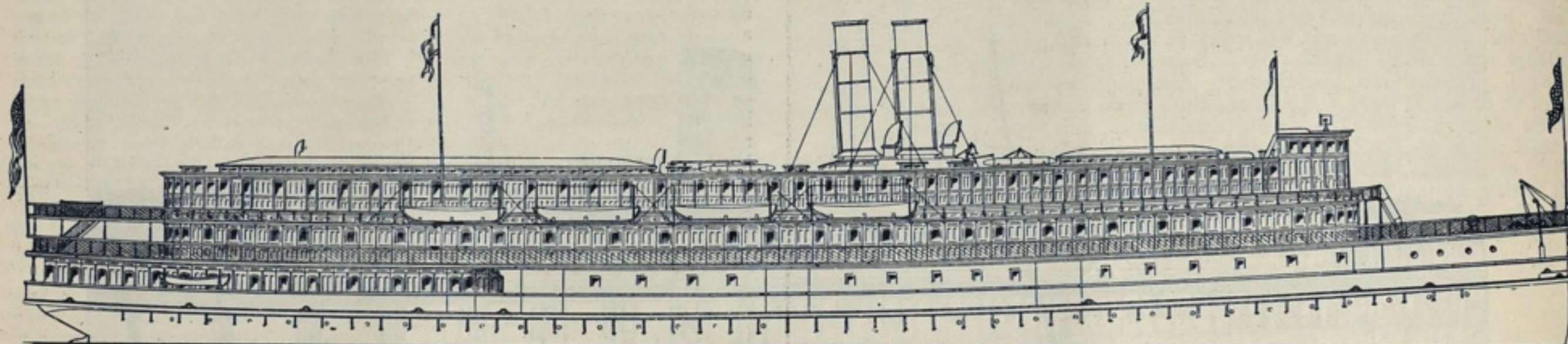
Baltimore, Md., May 16.—Few ship yards in America are more actively engaged upon the construction of vessels for delivery during the present year than the marine department of the Maryland Steel Co. at Sparrow's Point, near this city. After several years of inactivity, the marine department of this steel company's works resumed operations only a few months ago, when it became apparent that conditions arising from the Spanish-American war were likely to exert a considerable influence in the rapid development of the American merchant marine, and yet the yard already has under construction seven steel vessels for the United States government and for private corporations, as well as the largest floating dry dock in the world. All of this work, with the single exception of the dry dock, has been contracted for delivery before the close of 1899, and General Manager Wilson of the marine department, well and favorably known through his long connection with the Harlan & Hollingsworth Co., is getting out of his force of 750 men as much work as was ever before accomplished by an equal number of employes in any line of mechanical work. The efforts of Mr. Wilson in this respect have been materially facilitated by the arrangement of the Sparrow's Point yard. So advantageous is the arrangement that the grouping of the machine, boiler, joiner and other shops on the one hand, and the bending and ship fitting

suggested by the navy bureau of engineering. The keels for the torpedo boat destroyers have not yet been laid, but material is on hand and all preparatory work is getting along so well that the Sparrow's Point yard will probably not be behind its contemporaries in the fulfilment of the contract. All three destroyers will be fitted with complete equipments of Davidson vertical pumps.

The twin-screw passenger steamer building for the New Haven Steamboat Co., and which is designed for service between New York City and New Haven, Conn., is in frame and will be launched within the next six weeks. She is a handsome vessel and will present even more attractive lines than the steamer Richard Peck, after which she has been modeled by her designers, Cary, Smith & Barbey, naval architects of New York City. This steamer is 324 feet on deck, 310 feet water line, 48 feet molded beam, 64 feet breadth over guards and 17 feet 2½ inches depth. She is calculated to maintain a speed of 21½ statute miles per hour. She will be 10 feet longer than the Peck and will have the cabins on the galley deck continued aft as they are forward on the Peck. She is in accordance with rules of the United States Standard Register of Shipping. The lower deck will have ten staterooms with accommodations for twenty officers; also some passenger accommodations and quarters in forecabin for a large part of the crew.

The main deck contains the ladies' cabin and in this portion of the vessel a marked improvement over the Peck has been made by the removal of the bar to the back of the dining-room on the saloon deck. The promenade or saloon deck has a double row of staterooms on either side, and the gallery deck has the dining-room, cafe, bar, kitchen, pantry, officers' rooms and mess. The hurricane deck is occupied by the pilot house and captain's room. Mahogany staircases will be provided from the main to the lower deck and to the grand saloon. The steamer will have steam heat throughout and will be fitted with two iron water tanks, each of a capacity of 2,000 gallons. Two Ideal inclined engines will furnish power for the electric plant, which will furnish current to 650 sixteen-candle-power incandescent lamps and an 8,000 candle-power search light.

Power will be furnished by two inverted, direct acting, surface condensing, triple expansion engines, with cylinders of 24, 38 and 60 inches diameter by 30 inches stroke. The high pressure cylinder will be equipped with piston valves and the low pressure cylinders with slide valves. To



TWIN-SCREW PASSENGER STEAMER BUILDING BY THE MARYLAND STEEL CO., SPARROW'S POINT, MD., FOR THE NEW HAVEN STEAMBOAT CO.

sheds and other similar departments on the other, all but rivals that at the Newport News plant in point of conductiveness to economy of time, material and labor.

The Maryland Steel Co.'s yard when reopened last year was found to be so well equipped in the matter of tools and machinery as to require but small additional expenditures in that direction. Among the improvements made within the past few weeks, however, is the installation of a complete outfit of pneumatic tools of the Chicago Pneumatic Tool Co.'s manufacture. Manager Wilson is likely to attract the attention of all progressive ship builders by a system for the transportation of material, the practicability of which has been proven by experiments just concluded. The essential feature of this new plan is the employment of what is known as the "locomotive derrick," the first of which has been designed and built at the Maryland company's works. The plan, to put the idea in a nut shell, is to raise the ship plates from the ground to the exact position desired on the side of a vessel instead of lowering them from above as is done at Newport News and other yards where traveling cantilevers propelled by electricity or steam are employed. In the principle of operation on standard gauge track the derrick corresponds to the regulation type of locomotive crane, utilized in all ship yards for the handling of material, but instead of being mounted on the ordinary type of flat car, the apparatus in this case is operated from the top of a steel derrick which permits of ten tons or even more being raised to a height of 60 to 75 feet. The first of these new derricks has so thoroughly justified the claims made for it that four or five more will be constructed as rapidly as possible, the plan being to install one between each pair of ways in the yard—there are now seven—just as is done with the cantilevers. The hoisting apparatus is being constructed by the Lidgerwood Mfg. Co. of New York City.

In the construction of the torpedo boat destroyers Truxtun, Whipple and Worden the Maryland company will depart from government specifications, both as regards hull and machinery plans. The navy department plans call for vessels of 245 feet length and 23 feet beam, while the plans accepted from the Maryland company provide for boats of a length of 245½ feet and 22 feet 6 inches beam. In the former case a trial displacement of 420 tons was contemplated, but indications are that the destroyers building at Sparrow's Point will show a displacement of at least 433 tons on trial. Although these vessels are of somewhat greater dimensions and displacement than those contemplated by the official plans, they are on considerably finer lines and will have at least 300 horse power in excess of 8,000 specified. Boilers will be, in effect, identical in size and working pressure, but the triple expansion engines to be built by the Maryland people will have cylinders of 23, 34, 37 and 37 inches diameter by 22 inches stroke, instead of 20½, 32, 38 and 38 inches diameter by 22 inches stroke

these engines, which are expected to develop 4,200 indicated horse power, steam will be supplied from six Scotch boilers, 13 feet in diameter by 11½ feet in length, at a working pressure of 160 pounds. The boilers will have three steel corrugated furnaces, 400 square feet of grate surface and 12,000 square feet of heating furnace. The crank shaft will be of the built-up type. The steamer is expected to make her contract speed on a draught of 10 feet 6 inches. The interior furnishings of the vessel will be in almost every instance far more elaborate than in the Richard Peck, and the equipment will be of the very best, including a Williamson steam steerer with cylinder 6 by 6 inches, a windlass of the American Ship Windlass Co. type, Katzenstein packing and a full outfit of Blake duplex pumps. The Maryland company is making every effort to carry out the idea of the designers to have the new steamer especially safe, and four watertight bulkheads will be fitted. The contract for the vessel was let Nov. 3, 1898, and calls for her delivery on Sept. 3, 1899.

What might be called the second epoch in the development of the American "tramp" steamer is found in the construction of two steel colliers for the Boston Towboat Co., for which the keels were recently laid at the yard of the Maryland company. These vessels, which are building in accordance with rules of the American Ship Masters' Association, will be 324 feet between perpendiculars, 47 feet beam, 28 feet depth molded at side, 8 feet sheer forward and 3 feet sheer aft. Each collier will have seven bulkheads, of which number six will be watertight. The vessels will be schooner rigged; each will have two steel pole masts and be fitted with hand steering gear; one tank of a capacity of 500 gallons for the crew, two tanks of 3,000 gallons each in the engine room, and two hand fire pumps. Engines will be of the triple expansion type with cylinders of 21, 35 and 56 inches by 42 inches stroke. A working pressure of 170 pounds and a piston speed of 700 feet per minute is provided for. The high and intermediate pressure cylinders will be of the piston type and the low pressure cylinder of the slide valve type. The crank shaft will be of sound steel forgings in two pieces—the built up type. The two Scotch boilers will each be 14 feet in diameter by 10½ feet in length and fitted with Morrison furnaces. There will be a full equipment of Blake pumps and the auxiliary machinery will include four Williamson double drum engines and a Williamson steerer, as well as steam windlass. Two 20-foot metallic life boats and one 18-foot dingy will be provided. The contracts for these colliers were placed in January of this year and the boats are to be delivered in October and December. For the time being they will be employed in the coal trade on the Atlantic coast, although they are a kind of vessel that may readily be used in transatlantic trade if desired.

It is expected that three weeks at the outside will see the tug Britannia

building for the Baker-Whiteley Coal Co. of Baltimore ready for launching. The Baker-Whiteley company has an extensive local business and the tug will be required principally in harbor service but she will be of sea-going type in every respect and will engage more or less in towing to the West Indies. The Britannia is 132 feet 2½ inches over all, 125 feet 4½ inches between perpendiculars, 25 feet beam, 14 feet depth and 7 inches spring of beam amidships. The hull is constructed of mild steel and the deck house also of steel. Forward in the deck house will be a mess room ceiled with white pine. Aft of the mess room is the galley and abaft of the galley, a lamp room and two water closets. Aft of the engine room is the engineer's room. The pilot house contains the captain's room, which will be finished in sycamore. The crew space will be forward below deck and will be finished in white pine. The tug will be fitted with two masts. The triple expansion engines of the Britannia will have cylinders of 14½, 23½ and 39 inches diameter by 28 inches stroke, designed for 125 revolutions and expected to develop 600 to 650 indicated horse power. The high pressure cylinder will be fitted with piston valve and the other cylinders with double-ported slide valves. The surface condenser will have 1,000 square feet of cooling surface. The crank shaft is of the built-up type (steel forgings) and the propeller is four-bladed of 9 feet 6 inches diameter. Steam is to be supplied to the engine from a Scotch boiler, of 13 feet 9 inches diameter by 11 feet 6 inches length, at a working pressure of 165 pounds. The tug will be equipped with a 1,000-gallon tank, and one 800 and one 500-pound anchor, together with steam windlass and capstan. An electric plant will supply fifty sixteen-candle-power incandescent lights. The equipment otherwise will include a Williamson worm geared steerer, cast iron towing bitts 16 inches in diameter and side bitts 10 inches in diameter; one 16-foot cedar gig and one 20-foot metallic life boat. Worthington duplex pumps will be installed. The contract for the tug was placed Nov. 12, 1898, and she is to be delivered complete not later than June 1.

Emblazoned in gold letters the full length of the drawing room in the marine department of the Maryland Steel Co. are the words "Without Haste, Without Delay. With Perfect System." The motto is thoroughly typical of the policy which is being pursued in all departments of the plant but nowhere is it better exemplified than in the careful preparations that are being made for the construction of the large floating dry dock for the United States navy, which is to be stationed at Algiers, La. Plans for this dock were prepared by Clark & Stanfield, the London engineers who also designed the Stettin and Havana docks, but it will not be necessary to call in a representative of the designers to superintend the construction of the dock. This structure, which was fully described and illustrated in the Review a few weeks since, will be constructed in a basin that is now being dredged at Sparrow's Point. Some of the docks planned by the London firm have been launched in the regular manner, but others have been constructed in basins as will be the case at Sparrow's Point, so that there is nothing new in this latter method. When the dock is completed the basin will be flooded and the dock floated out and towed to the Mississippi. Superintending Engineer N. A. Magoun stated to your correspondent that there was hardly a doubt but that the dock would be completed within the time specified by the government contract.

DREDGING CONTRACTS.

A combination among dredging contractors on the lakes is again talked of since Col. Jared A. Smith, United States engineer, began opening bids a short time ago for harbor dredging at Cleveland, Sandusky and other places. The dredging contractors say they have not entered into a compact in dealing with the new work that is now planned, and they insist that the only effect of the stand taken by Col. Smith, if he is to follow out a policy of readvertising, will be to delay the dredging of harbors to the disadvantage of shipping interests. Col. Smith recently rejected all bids on quite a large job of work contemplated at Cleveland, but after the opening of proposals for the Sandusky work, a few days ago, he announced that he was greatly pleased to find that the bid of E. J. Pryor of Houghton, Mich., was very much lower than anything that had been received from the Lake Erie firms. This is proof, he says, of a combination providing for a distribution of work within certain districts. The answer of the dredgers is that Col. Smith is mistaken and that the Michigan contractor cannot possibly do the work at the figures submitted, but on the contrary will probably fall down on his contract and thus cause delay even more serious than would have been the case if new bids were called for as on the Cleveland job. Bidders for the Sandusky work were E. J. Pryor of Houghton, Mich., James Rooney of Toledo, Carlin, Stickney & Cram of Detroit, G. H. Breyman & Bros. of Toledo and L. P. & J. A. Smith of Cleveland. The work involves an expenditure of about \$27,000, and includes harbor dredging, as well as dredging in water that is at times liable to be greatly disturbed, and also some work in hard pan. The bids of E. J. Pryor for inside, outside and hard pan work were 9 cents, 12 cents and 16 cents per cubic yard, respectively, against 14 cents, 21 cents and 60 cents, the next lowest figures, which were submitted by James Rooney of Toledo.

"It would not be good judgment on the part of any of us," said one of the dredging contractors, "to enter into a controversy with Col. Smith on this subject, but it would seem that a comparison of the bids in the Sandusky case should be sufficient to convince anyone that the Michigan contractor has made a mistake. A policy that aims at unreasonably low prices in times like the present when everything is advancing can only result in delays and inconvenience to commerce. Nobody has become rich out of the dredging business in this part of the country, and it certainly does not seem like the right policy to find representatives of the government carrying the economy argument to extremes when business and prices in all lines are booming and give promise of continuing so for a long time to come."

The Chicago Pneumatic Tool Co. and Joseph Boyer have begun suit in the United States court at Philadelphia against the National Pneumatic Tool Co. for infringement of patents covering the well-known Boyer pneumatic hammer. It is claimed on the part of the Boyer people that the National company has deliberately copied the Boyer hammer and directly infringed the Boyer patents.

FOUR NEW LINERS.

ELEGANT SHIPS BUILDING FOR THE INTERNATIONAL NAVIGATION CO.—TWO FOR RED STAR LINE SERVICE, NEW YORK AND ANTWERP, AND TWO FOR THE PHILADELPHIA-LIVERPOOL SERVICE OF THE AMERICAN LINE.

The last issue of the Review contained a short article giving the names of four steamers building on the Clyde for the International Navigation Co.—two for Red Star Line service between New York and Antwerp and two for the Philadelphia-Liverpool service of the American Line. It was certainly a mistake to say that the Vaderland and Zeeland, building for the Red Star Line service, and which are to be powerful and fitted in the very best modern style for a large number of cabin passengers, would be classed as intermediate ships. President Griscom of the International company has favored the Review with a general description of the steamers, all four of which are building at the works of the Clydebank Engineering & Ship Building Co.

The two splendid steamers for the Red Star Line service between New York and Antwerp will be named the Vaderland and Zeeland, thus reviving the names of two of the first steamers of the Red Star Line which enjoyed successful careers. These new boats will be among the largest afloat and will be attractive additions to the Red Star Line fleet. They are 560 feet long, 60 feet wide and 42 feet deep. They will be of about 12,000 tons measurement and fitted with twin screws and bilge keels. When loaded they will have a displacement of nearly 20,000 tons. They will have accommodations for 300 first cabin, 250 second cabin and 750 steerage passengers. The cabin passengers, both first and second, will all be carried amidships in the bridge deck house, and the majority of the rooms will be deck cabins. There will be a limited number of suites consisting of bed-room, sitting-room and bath-room similar in character to those which have proved so popular on the St. Louis, St. Paul, New York and Paris.

On the promenade deck, which is of ample size to accommodate comfortably the number of passengers carried, will be found a large and well-equipped library and also a smoking room conveniently situated, accessible from the deck and from below without going on deck. This is a convenience experienced travelers will appreciate. The first-class dining saloon will be large enough to accommodate all the passengers at one sitting, and situated amidships on the upper deck where there is less motion felt than any other part of the ship. The staterooms are large and well ventilated, the ships being equipped with a special system of mechanical ventilation. In most vessels it is considered sufficient for ventilating purposes to have a stateroom on deck, but in these ships the company has not rested satisfied with this and will spare no effort to have an abundant supply of fresh air at all times, even when all port holes and doors have to be closed. An unusual number of bath-rooms will be found conveniently situated which is a luxury modern travelers appreciate more and more.

The second-cabin accommodations are also situated amidships and principally in the deck house, so that most of these rooms also are really deck cabins. An unusual amount of promenade deck space is allotted to the second-cabin passengers and they will also have a comfortable and well-equipped smoking-room and social hall. The dining saloon is also situated amidships and is of large seating capacity. Steerage accommodations will be found to be of the most approved up-to-date type. They will consist largely of two, four and six berth rooms, and all will be well lighted and ventilated. Ample lavatory accommodations will be found, in addition to which there will be bath-rooms for men and women, an innovation which is sure to be appreciated. In addition to the usual accommodations a large social hall will be provided and there will be plenty of sheltered deck space.

It is not intended to make these boats "ocean greyhounds" in the modern sense, but they will make the trip from New York to Antwerp in eight days, steaming about 17 knots, and it is not so many years since this would have been record-breaking time.

The steamers for the Philadelphia-Liverpool service of the American Line building at the same ship yard will be named Merion and Haverford. They will be 530 feet long, 59 feet wide and 39 feet deep. They will be of about 10,000 tons measurement and will also be fitted with twin screws and bilge keels and capable of a speed of about 13 knots. Following the custom of the Philadelphia service of the American line they will be equipped for only one class of cabin passengers. The accommodations for these cabin passengers, of whom there will be about 130, are all situated in the deck house amidships. The cabins will be large, well ventilated, well lighted and comfortably furnished. On the promenade deck, which is reserved exclusively for the use of these passengers, there is a smoking-room and a social hall. The cabin passengers on these ships will have quarters in every way equal to the best afloat, excepting perhaps that the decoration will not be quite so elaborate, but for people who do not care for this and for high speed, no better, cheaper and more comfortable way of crossing the Atlantic can be found. The popularity of the present service shows there is a large number of people who appreciate these advantages.

These boats will have accommodations for about 800 steerage passengers, all of whom will be in the deck house amidships, and as in the Antwerp boats, the quarters for the steerage passengers will be of the most comfortable and modern type. There will be rooms holding two, four and six people, all will be well lighted and well ventilated. They will also have the best of lavatory accommodations, and the large size of the ship, together with the comparatively small number of passengers carried, insures plenty of room for everybody on the decks.

A catalogue just issued by the Sprague Electric Co. of 20 Broad street, New York, is handsome enough typographically to compare most favorably with the finest examples of the book maker's art. The contents are worthy the introduction offered by so artistic a cover, and constitute among other things a fully illustrated and very interesting description of the entire process of the manufacture of Lindell fan motors. Following this the motors are described and pictured in detail.

MARINE REVIEW

Devoted to the Merchant Marine, the Navy, Ship Building, and Kindred Interests.

Published every Thursday at No. 418-19 Perry-Payne building, Cleveland, Ohio, by
THE MARINE REVIEW PUBLISHING CO.

SUBSCRIPTION—\$2.00 per year in advance. Single copies 10 cents each. Convenient binders sent, post paid, \$1.00. Advertising rates on application.

Entered at Cleveland Post Office as Second-class Mail Matter.

In the volumes that are being written about the decadence of our merchant marine, the number of plans advanced for a revival of shipping is only equaled by the criticism that is passed upon existing conditions. The latest writer to lament our present situation is H. Phelps Whitmarsh, who in an article on "American Deep-Water Shipping" in the Atlantic Monthly declares that "if there is one thing that America has to be ashamed of, it is the neglected state of her shipping. It is a disgrace to the nation." The writer follows a prolonged and caustic denunciation with a number of suggestions as to the measures which may be expected to prove most speedily remedial. In part he says: "American shipping needs two things. It needs a revival of national interest, and it needs some kind of government aid. The former, thanks to the naval successes in the late war, shows signs of awakening; but practical encouragement from the government, except by the antiquated, makeshift methods already referred to, seems to meet with no serious consideration. It is surely patent that neither bounties, subsidies nor free ships will revive American ship building or restore her once great merchant marine. The remedy must be more than an outward application. To compete successfully with Great Britain's long experience in the art of ship building, her persistence in controlling the tropics and the trade of the tropics, her national interest in remaining the ruler of the seas, American shipping must be launched anew, stimulated and supported by the nation, in a much stronger and broader fashion than has yet been tried. The first step in this direction should be the formation of a body similar to the British board of trade, or a department of merchant marine like the department of agriculture, in order that the interest of ship owners and seamen, and all maritime matters, may receive special and constant attention. The head of this department should be a cabinet officer. He should be chosen to his position by the advice of chambers of commerce, ship-owners and shipmasters' associations of the country. This department should have under its control all seaboard consuls. This department should inspect, while building, every vessel put together in American yards, performing this service without expense to the owner. Examinations for the position of master, mate and engineer should be the duty of this department. But this is only in the line of general improvement. Something more specific and radical than a department of merchant marine is needed to place the United States on an equal marine footing with England—some measure that will perfect and invigorate the industry without being a protective law. To that end, it is suggested in connection with the department there should be a liberal system of marine insurance. Every ship built under government inspection, and engaged to foreign trade, should have her hull insured free; the department, with the United States treasury behind it, acting as underwriter. And all cargoes carried by oversea routes under the American flag should be insured at a lower rate than that offered by foreign insurance companies." Obviously this beautiful and visionary plan, were it adopted, would serve its purpose as a stimulus to our shipping, but it is impracticable in the extreme in so far as it proposes free insurance by the government.

Mr. F. W. Wood, president of the Maryland Steel Co. of Sparrow's Point, Md., can certainly not be classed as an optimist and yet he takes the view that the encroachments of American steel on foreign markets will continue, even if the present high prices tend to retard the advance for a time. Mr. Wood's views on this subject are of especial interest by reason of the great quantities of rails that have been shipped on foreign orders of late by the Maryland company at whose dock at Sparrow's Point vessels have been loading for foreign ports almost continuously for many weeks past. In conversation with a correspondent of the Review a few days since, President Wood said: "We secured our foreign orders for rails simply because we bid lower than anybody else. We are not bidding just now so low as we were and consequently I do not imagine that we will receive quite so many foreign orders for the time being." For officers of a corporation that is engaged in the building of ships the officers of the Maryland company take a singularly broad and comprehensive view of the situation so far as the upbuilding of the American merchant marine is concerned. Said one of them: "There is no doubt that we can and do build just as good if not better steel vessels in this country than are turned out from the British yards, but we must remember that by reason of the wages paid his seamen and the other hands on board his vessel the foreign owner is enabled to operate his ship at an expenditure which I honestly believe is fully 50 per cent. less than that entailed upon the American ship owner."

The ship owner appears to be a factor not considered to any great extent in discussions regarding the crowded condition of American ship yards, their inability to meet present demands, etc. A prominent shipping man, referring to his own position on this score, says: "The firm with which I am connected is not only in the market for vessels but is badly in need of them. We want our vessels to fly the American flag and we want American labor, but ship building firms to which we have written say that they simply cannot consider any commissions in which delivery under two years is asked. Now I believe that unless the number and capacity of American ship building plants is speedily increased such pressure will be brought to bear upon congress that it will be simply compelled to allow American ship owners to purchase their vessels abroad. Such object lessons as that recently afforded by the experience of the International Navigation Co. will go far toward bringing about a

change. The International company in contracting some time ago for two steamers to be built on the Clyde announced its intention of building an equal number in American yards, but now because of inability to get delivery within reasonable time they are obliged to go to the Clyde for the other two vessels, although, as I understand it, a large portion of the material for these ships will be made in America. If our capitalists will only awake to the situation, I believe that there is no industry in America that will compare with the record of progress which our ship building will show during the next ten years."

Many of the smaller ship yards of the country that are confined chiefly to repair work might with advantage emulate the example of Woodall & Co. of Baltimore, Md. The Woodall yard is engaged chiefly on the repair of wooden vessels but this is not, of course, sufficiently continuous to give steady employment to the full force of workmen. The latter, although small when taken in comparison with those at some of the large eastern ship yards, contains a number of skilled workmen whom the management of the yard would be loath to lose, and Mr. Woodall therefore decided to build a small steamer for "stock." He went even further and secured a prospective purchaser, who agreed to take the vessel at a stipulated figure should her builders be unable when she was completed to secure a higher price for her. The vessel on the stocks at the Woodall yard is of a type suited to a variety of purposes, and inasmuch as labor is expended upon her only when no repair work is at hand, and the builder is assured of a purchaser at a price that will allow him a small margin when she is completed, whenever that may be, it can readily be seen that the advantages are both great and numerous.

NIXON'S GOOD FORTUNE.

THE PROPRIETOR OF THE CRESCENT SHIP YARD, ELIZABETHPORT, N. J., SEEMS LIKELY TO BE THE ONLY CONTRACTOR WHO WILL DELIVER TORPEDO CRAFT ON TIME.

The fact that the number of irons which Lewis Nixon, the well-known naval architect and ship builder, constantly keeps in the fire does not prevent him from displaying plenty of energy in the management of each of them, is conclusively demonstrated by the announcement that of all the ship building firms of the country holding contracts for twenty-six torpedo boats and destroyers now building for the navy department under the appropriations of the act of May 4, 1898, the proprietor of the Crescent Ship Yard at Elizabethport, N. J., is the only one who is likely to turn over the completed vessels within the time stipulated in the contract. In explanation it may be said that, first of all, Mr. Nixon's personal qualities, added to his ability, gave to him while he was attached to the navy department a popularity that has worn exceedingly well. With this advantage, added to the exercise of wide-awake propensities, the young ship builder was enabled to get an inkling of the exact type and character of the boats which it was proposed to build just about as early as anybody in Washington. The next task was to secure the requisite material. The demand for ship plate had not at the time of letting these contracts reached the proportions that it assumed later on, but it was active enough to warrant foresight such as the designer of the Oregon displayed. By reason of his political affiliations in New York, and other influences, the indefatigable Nixon had precedence given to his orders for plate, and it is related that he actually had his material on the ground at Elizabethport before some of his rivals had received their accepted designs from the department. In consequence, there is a practical certainty that unless the unforeseen intervenes the torpedo boats Nicholson and O'Brien will be delivered by Sept. 26, 1899. Mr. Nixon will thereby establish a new record in the construction of naval vessels in this country, and this with a ship yard that is not a very large affair as yet.

Matters are at present in a most prosperous condition at the Nixon yard, however, and it is understood that the proprietor has now under consideration a project for the extension of the yard in considerable proportions. Many of the departments are working night and day and the orders on hand are sufficient to keep all departments occupied for more than a year. With this situation in view, and the outlook for more work very bright, there should be small wonder at Mr. Nixon's recent declaration that he is not in favor of a combination of coast ship building interests. But he is credited with the statement that he hopes to see eventually in this country a condition in ship building similar to that now prevailing in the steel industry, whereby contributory interests are amalgamated. His idea seems to be that exemplified by the Armstrong works of England, where a ship yard is combined with a steel plant and gun and gun carriage factories, and where one firm performs the entire work of the evolution of a ship from the conversion of the ore to the provision of shot for the mounted guns of a battleship.

MOST USEFUL FUNCTION OF LLOYD'S.

If any member of Lloyd's were asked what is the principal and most useful function of the institution, he would promptly reply: "The collection of information with regard to the movement of ships." It is true that this was not the object which originally called Lloyd's into being. In its infancy, in the days of Lloyd's coffee house, it was merely an exchange where merchants and underwriters met together to transact business direct without the intermediary services of a broker. But, undoubtedly, the collection of news is its most useful function now, and it is to get this information direct that the companies are content to pay the heavy annual subsidies demanded of them. The information is sent chiefly by Lloyd's agents, one of whom is to be found occupying that honorary, but indirectly valuable post, in every port, however small. The Intelligence department has developed into a vast organization, and perhaps we may admit that, on the whole, the work is done well.—Syren and Shipping.

The Delaney Forge & Iron Co. of Buffalo is making extensive improvements in its plant. Among new machines being installed are two power hammers, one of them a 10,000-pound upright.

REVENUE CUTTER SERVICE.

CAPT. CHARLES F. SHOEMAKER TELLS THE REVIEW THAT A NUMBER OF NEW VESSELS WILL BE NEEDED—NEW CUTTER FOR THE GREAT LAKES.

Washington, May 17.—Capt. Charles F. Shoemaker, chief of the revenue cutter service, told a representative of the Marine Review who called upon him at his office in the treasury building today that he hoped for considerable assistance from the next congress in the matter of increasing the efficiency of the service by the provision of funds for new vessels, which the captain says are very badly needed. In answer to a question as to whether the acquisition of new possessions recently taken under the dominion of the United States would necessitate the provision of additional revenue cutters, Capt. Shoemaker said: "New vessels would certainly be required. If we were obliged to extend our service even to the island of Cuba about ten additional ships would be needed for service on its 3,000 miles of seacoast. Happily, however, the fact that the United States will not, if the present policy is pursued, acquire this island permanently obviates the necessity of providing vessels for service there. But we will need a vessel for service at the Hawaiian islands, and at least two cutters for duty on the coast of Porto Rico; this on the supposition that none will be needed for the Philippines. It seems to me that congress will understand the necessity of making provision at once for these vessels. If it does not, I do not know what we shall do. We have at present just sufficient vessels for the requirements of the Atlantic coast, and we cannot expect to add 10,000 or 12,000 miles to that seacoast and get along without additional boats. Obviously, too, it would be unwise to rob any of our present stations in order to provide for new territory.

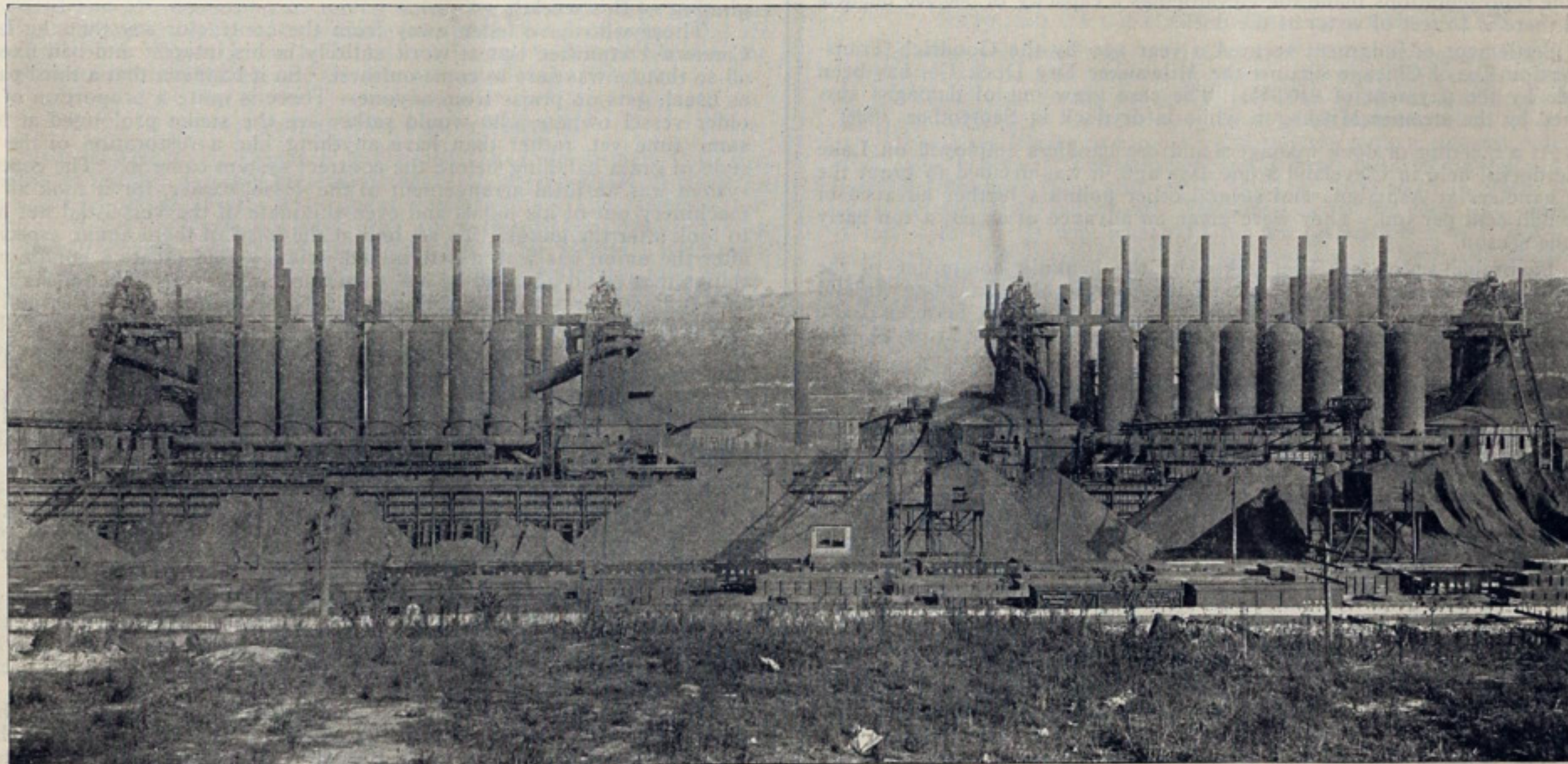
"I have had congressmen and others ask me why we could not purchase vessels suited to our service or even make use of some of the

them. But they are certain to prove invaluable to us on the coast. Why in everything save the matter of fuel we can stock them up to run for a year."

Capt. Shoemaker says there are a number of the old type of revenue cutters on the Atlantic coast which will have to be replaced with new boats of modern construction within a very few years. In speaking of the new cutter for Pacific coast service, for which the last congress made an appropriation of \$225,000, the chief said: "We will go ahead with this boat and also the cutter for the lakes as soon as the money becomes available in July. I hardly anticipate that the vessel for service on the Pacific will be built at any of the Pacific coast yards, for the simple reason that I think the matter of the cost of material and other obstacles will prevent the western builders from competing successfully with eastern yards for the contract. Of course the vessel cannot be built on the lakes, as her dimensions will be such as to prevent passage through the canals."

GROWTH OF CUBAN COMMERCE.

Acting Secretary of War Meiklejohn is quoted in a Washington dispatch as follows: "The magnitude of Cuban commerce, as well as its rapid expansion, is shown by the navigation returns of the port of Havana for the month of February. Taking just the vessels engaged in trade between Havana and foreign ports, the total tonnage of steamers entered during February was 154,651 tons, and of sailing vessels 13,009 tons, making a total of 167,660 tons. The relative proportions of this trade will be more clearly understood by comparison with the returns for ports with which we are more familiar. The total tonnage from foreign ports entering San Francisco in February was only 91,768 tons; Philadelphia, 109,771 tons; Baltimore, 147,032 tons, and Boston, 153,277 tons, showing that Havana's tonnage entries were some 9 per cent in excess of Boston and second only to New York of all the United States



DUQUESNE FURNACE PLANT OF CARNEGIE COMPANY—CAPACITY 800,000 TONS OF PIG IRON ANNUALLY.

auxiliary yachts purchased by the navy department during the Spanish-American war and still retained under the jurisdiction of that department. In answer to the first question I would say that we would never be able to purchase anything like as satisfactory a vessel as we can build; indeed, to make them of any use to our service we must design them ourselves. As for the yachts, they are not only not adapted to the work but in the case of the great majority of them were during the war run for all they were worth and as a consequence are of little value now."

Capt. Shoemaker has in hand the preliminary plans for the new revenue cutter for the great lakes. "As you may know," he said, "we have spent considerable money in remodeling and improving the revenue cutter Morrill, which was taken to the lakes from the Atlantic coast last autumn, and her commander, Capt. Davis, who is one of the oldest lake navigators, informs us that in her reconstructed form she is exactly the type of craft that is best suited to efficient service on fresh water. Accordingly, we are mapping out the plans for the new boat along these lines. We expect to make her a vessel of about 175 feet in length by 30 feet beam and 9 feet draught—at least not to exceed 9½ feet draught. We have not yet decided whether we will specify compound or triple expansion engines, but we will get a speed of 14 or 15 knots out of her with natural draft. Such a boat can, I think, be built inside the appropriation of \$165,000; at least it seems to me that we ought to be able to build a good steel vessel at \$300 per ton or thereabouts."

When the conversation drifted to the revenue cutters Gresham, Algonquin and Onondaga, which were taken from the great lakes to the Atlantic coast during the war, the chief said: "We are more than pleased with those vessels, which, by the way, are now being fitted with bilge keels. Better boats were never constructed, but there was no need of such large or powerful vessels on the great lakes and their draught was too great to permit of the right kind of service being secured from

ports. In clearances the showing is somewhat similar, there having cleared from Havana in February steamers having a tonnage of 134,488 tons and sailing vessels with a tonnage of 10,484 tons, making a total tonnage movement outward bound of 145,372 tons. In comparison San Francisco showed 68,411 tons, Philadelphia 115,371 tons, Boston 131,797 tons, and Baltimore 137,177 tons, thus leaving Havana second, both in tonnage entered and cleared, only to New York."

For the first time in the history of this country the weekly output of pig iron has passed the quarter-million mark. This is the best indication of the great activity that still prevails everywhere in the iron and steel industry. Consumption of pig iron goes on at the rate of more than 37,000 tons daily. There are many indications that the market is again reaching a critical period and it will take tact and forbearance on the part of producers and consumers alike to prevent another sharp advance. "The scarcity of pig iron and steel is getting more pronounced," says the Iron Age. "Consumption is still in excess of current production. It is true that we are entitled to look forward to a steady increase in the output, east and south, but experience thus far has taught how slow that is. The leading producers are now sold up for the third quarter and many beyond that period."

Among the Americans in attendance at the recent annual meeting of the Iron and Steel Institute in London were Andrew Carnegie, S. T. Wellman of the Wellman-Seaver Engineering Co., Cleveland, and Bert-ram S. Somers of Chicago.

Newport News, Va., is to have, within the year, one of the three or four plants which the Marsden Cellulose Co. will locate in various eastern cities. The company is capitalized at \$3,000,000 and already has immense factories at Owensboro, Ky., and Rockford, Ill.

AROUND THE GREAT LAKES.

The wreck of the steamer H. A. Tuttle has been removed from the harbor entrance at Michigan City.

The steamer M. A. Hanna, recently completed at the yard of the Globe Iron Works Co., Cleveland, took on a cargo of 237,000 bushels of corn on her initial trip from Duluth.

The yacht Rival, recently purchased by President A. W. Goodrich of the Goodrich Transportation Co., Chicago, was severely damaged by being driven ashore at Sheboygan, Wis., a few days ago.

The strike at Buffalo has acted as a great stimulus to the grain elevating interests at Port Huron. Over 2,000,000 bushels of grain has been handled at that port since the opening of navigation.

Advices from Duluth are to the effect that persons who have inspected the wrecked steamer Harlem report that the vessel is standing upright, facing due east and resting on the reef near Menagerie island, Isle Royale group.

Under an order from President McKinley a new hospital for the treatment of tuberculosis diseases is to be established on an abandoned military reservation in New Mexico and patients will be exclusively lake and deep water sailors.

Capt. J. G. Warren, United States engineer, is now arranging for the construction of the light-house at the south end of the government pier at Milwaukee which is to replace the schooner Surprise which has heretofore served as a light-ship.

Capt. John Lundy, who has sailed the lakes for more than twenty years, and who was in command of the tug Constitution at Sault Ste. Marie, died at that place a few days ago from a stroke of paralysis. Interment was made at Cleveland.

Efforts are being made by the board of trade of Oswego, N. Y., to impress upon grain shippers the qualifications of that port. According to the representations made the elevator has a capacity of 500,000 bushels and there is 15 feet of water at the dock.

Settlement of judgment secured a year ago by the Goodrich Transportation Co. of Chicago against the Milwaukee Dry Dock Co. has been made by the payment of \$10,915. The case grew out of damages sustained by the steamer Muskegon while in drydock in September, 1896.

At a meeting of dock managers and ore handlers employed on Lake Erie docks, held in Cleveland a few days ago, it was decided to grant the ore handlers at Ashtabula and several other points a further advance of one-half cent per ton. They were given an advance of a cent a ton early in the season.

Favorable action has been taken by the banking committee of the Canadian parliament on the bill to incorporate the Canadian Inland Transportation Co. for the operation of a line of vessels between Lake Superior and Montreal. The capital was reduced, however, from \$4,000,000 to \$2,000,000.

Suit has been commenced against the Aetna Insurance Co. by the Vulcan Transportation Co. of Detroit for \$1,000 insurance alleged to be due on the barge H. H. Brown and \$1,250 claimed to be due on the barge San Diego, both of which were lost while under charter to the Atlantic Transportation Co.

Mrs. Jessie L. Harrington of 148 Glen avenue, Council Bluffs, Iowa, is very much concerned as to the whereabouts of her son Robert E. L. Harrington, from whom she has not heard since last October, at which time he was sailing on the lakes. Any person having information regarding the young man will confer a great favor by communicating it.

Capt. J. H. Kelleran, well-known marine insurance surveyor, died at his home in Buffalo on Saturday last. He came to the lakes in 1890 from New York and engaged with the Lehigh Transportation Co. as marine superintendent. Later he was marine superintendent of the Northern Steamship Co., and still later was in vessel brokerage business at Buffalo.

The steamer Eureka, built for W. A. Hawgood and others of Cleveland, was launched at the yard of the Cleveland Ship Building Co. at Lorain, O., on May 13. The vessel, which is designed for traffic through the Welland and other Canadian canals to the seaboard, is 238 feet keel, 42 feet beam and 25½ feet depth. She is fitted with a triple expansion engine having cylinders of 17, 28 and 42 inches diameter by 36 inches stroke.

Bids submitted to Maj. Thos. W. Symons, United States engineer at Buffalo, for the construction of concrete superstructure for the breakwater at Buffalo are as follows: Frank M. Sylvester, \$74,455; James B. Donnelly, \$72,487.50; Buffalo Dredging Co., \$70,169.25; George B. Carter & Sons Co., \$73,225. All the bidders are of Buffalo. It will be observed that the Buffalo Dredging Co. is the lowest bidder but no award of contract has yet been made.

A lease of the Breen iron mine at Waucesaw on the Menominee range has been made to the Minnesota Iron Co. The option is for one year and the life of the lease thirty years. The mine has produced two grades of ore, a non-Bessemer soft Hematite and a high grade blue hematite Bessemer, running as high as 70 per cent. An option on the Emmet mine and other mineral land adjoining the Breen has also been granted to the Minnesota company. The Emmet is said to be rich in Bessemer ore and also carries a desirable grade of non-Bessemer.

The Minch schooner Aberdeen was sold at Marshal's sale at Milwaukee, Wednesday, for \$5,020, being bid in by Henry Pauly. On Oct. 27 last the Aberdeen was picked up in a disabled condition by the steamer Nyack and towed into Grand Haven. She was afterward libeled by the Crosby Transportation Co. of Milwaukee, owners of the Nyack, on a salvage claim of \$1,875. The sale is a result of differences regarding this salvage claim and insurance on the vessel.

Judge Swan of the United States district court, Detroit, on Wednesday appointed P. W. Clements of Rutland, Vt., receiver of the Ogdensburg Transit Co., upon the petition of Frederick H. Prince of Boston. This company, organized in Michigan and capitalized at \$800,000, has been operating eight steamers between Ogdensburg, N. Y., and upper

lake ports, in connection with the Ogdensburg & Lake Champlain and Central Vermont railroads. Mr. Prince relates in his petition that he holds \$70,000 worth of stock in the company, and the step is taken for the protection of himself and other stockholders and creditors. He further states that the sum of \$634,000 is still owing on bonds issued to the amount of the capital stock, besides an outstanding indebtedness of \$110,000. The company has also defaulted, he says, on its annual payment of \$15,500, which was to be placed in a sinking fund for the liquidation of the bonds.

THE GRAIN DEADLOCK.

A VIEW OF THE SITUATION FROM SEVERAL STANDPOINTS AT BUFFALO—ALL INTERESTS OPPOSED TO GIVING UP THE CONTRACT SYSTEM.

Buffalo, May 17.—So far as it appears now the grain shovelers' strike has been left to wear itself out. A brief summary of opinion here regarding this trouble may prove interesting. Of course there is some dissension among the vessel owners. Some would be glad to see the elevators issue a call to the scoopers to go to work on the old plan with no general contract to bind anyone. It would be easy to maintain a uniform rate of handling and it is likely that the men would respond, though they have refused to accept the invitation of a single elevator on that basis, as they said that to take out a few cargoes would merely help the contractor.

The friends of Contractor Connors for the most part stand by him in everything. They say that in the attempted settlement a blunder was made in forgetting to make some provision for the non-union men that are now or lately were at work, and that the union was too hasty in declaring that the contractor had violated his agreement in not at once suspending the obnoxious boss scoopers. Of course, they say, it was not possible to make all these changes in a minute, but they would have been made. It was these two points that prevented the settlement of the strike at the beginning of this week.

Those who have fallen away from the contractor say that the Lake Carriers' committee was at work entirely in his interest and had fixed it all so that he was sure to come out best. So it happens that a third party, as usual, gets no praise from anyone. There is quite a proportion of the older vessel owners who would rather see the strike prolonged at least some time yet, rather than have anything like a restoration of the old style of grain handling before the contract system came in. The contract system was an ideal arrangement to the vessel owner, for it took all the machinery out of his hands and even the mate of the vessel did not have to look after the gangs. To set him at the head of them again, especially after the union has won a determined strike, would create a condition of things that could not well be less than unbearable. So it is not very odd that nobody cares to take the matter into his hands and try to pull his vessel or his grain or his elevator out of the predicament they are all in. For awhile there were grain men and vessel owners inclined to take legal proceedings in the matter, but we hear nothing of this now.

Still the strike is taking money out of this port and its business generally by the million. It was estimated that the loss was at least \$1,000 an hour when only the scoopers were out, but now, with freight handlers, coal heavers, ore handlers and elevator hour men all out, and more expected to follow, the loss is far beyond the thousand. It is now stated that the railroads are sending their empty cars to Chicago for the grain and the all-rail routes are following so close on the lake-and-rail route that it may take some time to get the grain back to the lake route after the strike is settled, especially if it has to be allowed to die by inches.

The coal-shipping trade has dropped down to a mere nothing, with seldom more than two clearances a day. The vessel owners are at the same time trying to insist on the demurrage clause in the bill of lading, which adds somewhat to the complication, though the shippers as a rule refuse to have anything to do with it.

A count today of the situation found twenty-nine line steamers here, which included all of the Union line but the Tioga and all of the Lehigh line but the Wilbur and Seneca, the latter having just got away after a week's wait. There are seven Western liners in the list. No Anchor liners are counted, but they are away mainly because they have been diverted to Erie to avoid the strike. The Owego of the Union line has lain since late last week at a dock trying to discharge some wet wheat. The men took out about half of it and then refused to go on. The grain afloat is about 3,000,000 bushels.

TO OPERATE LAKE VESSELS ON THE COAST.

Boutell Transportation & Towing Co. is the name of a corporation organized in Cleveland, a few days ago, with \$300,000 capital to operate vessels on the Atlantic coast. The incorporators are Wm. H. Mack, W. H. Becker, Benj. Boutell, Alfred Mitchell and R. M. Lee. The new company has purchased the tugs Sweepstakes, Peter Smith and Traveler, and takes over also the vessels of the Mack-Becker fleet, as well as the barge J. C. Fitzpatrick, which went to the coast under contract with the Atlantic Transportation Co. The operation of these barges in the coal trade, together with a general towing business, is so planned that success seems assured for the new company. The barges are certainly among the very best that left the lakes, and with the control of three tugs it is expected that the company will not only be able to care for its own vessels but will do other towing. The owners of these vessels, who are in reality pooling their interests in the new company, are practical vessel men and it would seem that they should find no serious difficulty in operating their vessels on the Atlantic coast any more than on the lakes. They start in with plenty of working capital and will probably establish headquarters at Boston, sending W. H. Mack there to take up the management of the vessels. The Gilchrist vessels on the coast are being operated in connection with the Luckenbach towing interests of New York.

The legal controversy over name between the Penberthy Injector Co. and the Lee-Penberthy Mfg. Co. of Detroit has been settled by an order of court that has resulted in the latter concern changing its name to the Lee Injector Mfg. Co.

STATUS OF THE CUP DEFENDER.

Following are some of the latest notes from Providence, R. I., regarding structural features of the cup defender:

The bow of the Columbia now presents a finished appearance. Riveting is almost completed along the amidship section and the top sides there are pretty clear of staging. The plates are not yet all adjusted on the frames, and at the present there are three to be set up on the stern. Considerable preparation is being made for the laying and nailing of the deck planks. The steel slabs upon which the white pine planks will rest are nearly all riveted on top of the deck frame. The location of the bobstay plate at the forward part of the yacht is an important part of the construction that has been looked for by those interested in how much of an overhang the boat will have forward. The lower edge of the bobstay plate on Herreshoff yachts generally marks the location of the water line. The plates and stem have been marked for the location of the bobstay plate and the forward end is between frames 10 and 11. It is to be about 8 inches wide, runs aft for 3 to 4 feet and is bolted through the plating on the yacht. The frames of the new steel mast instead of being formed of steel angle bars such as are used for ribs in the yacht, as has been exploited, are of steel rails, such as are in ordinary use on street electric railways. They are known as "T" rails to distinguish them from grooved ones. There are four lines of the rails running from one end of the hollow spar to the other, parallel to one another, and in sections of from 10 to 16 feet. When it was found upon testing the steel angle bars in use in framing the boat that they were lacking in required stiffening quality for the mast, the steel rails were decided upon, and they appear to answer the purposes for which they are used. The plating of the mast in strongly and neatly riveted to the flat part of the rails, leaving the square part of the rail inboard, producing at once a great amount of stiffening and stability. Angle bars were used in the steel boom and gaff for longitudinal frames. The mast will be completed some time this week. There are only two small quarter plates to go on the step end of the mast, and fully three-quarters of the riveting is done. The bulkheads that are to be placed forward and aft, according to racing rules, are finished. The new steel boom and gaff are lying upon wooden horses on the north wharf and are of slate color. There seems to be little difference in length between the steel mast of the Columbia and the wooden mast of the Defender.

PROGRESS ON NAVAL VESSELS.

The bureau of construction and repair, navy department, has just issued its regular monthly statement regarding the progress of work on the various naval vessels now under construction. The report shows that on May 1 the battleship Kearsarge was within 10 per cent. of leaving the builder's hands, and the Kentucky only 2 per cent. behind. Both these vessels are being built at Newport News, where the Illinois, with 65 per cent. of work done, is also under construction. Of the two battleships at the Cramp yard the Alabama was within 18 per cent. of completion and the Maine, on which work has just started, has 4 per cent. of work done. The Wisconsin, at the Union Iron Works, San Francisco, had 67 per cent. to her credit, while the Ohio, at the same yards, had not been started. One per cent. of work had been done on the Missouri, sister of the Ohio and Maine, at Newport News. The sheathed cruiser Albany, purchased from Brazil, is four-fifths completed at the Armstrong yards in England. Work has been started on three of the four monitors provided for in last year's appropriation bill. Of the sixteen torpedo boat destroyers recently provided for, the Hopkins and the Hull, at the Harlan & Hollingsworth Works, Wilmington, Del., are in advance of all the others, with 17 per cent. of work done. The torpedo boat Dahlgren, at the Bath Iron Works, Maine, was within 4 per cent. of completion. The T. A. M. Craven, at the same place, was next, with 92 per cent. The other fifteen torpedo boats range in progress from 6 per cent. to 75 per cent., with the exception of three on which work has not been begun. The Chesapeake, the sailing vessel for naval cadets, lacks 22 per cent. of being finished, and the submarine torpedo boat Plunger, at the Columbian Iron Works, Baltimore, shows 85 per cent. of work completed.

SUIT AGAINST THE BATH IRON WORKS.

Miller, Bull & Knowlton, the well known shipping firm of New York City, has entered suit against the Bath Iron Works of Bath, Me., to recover \$100,000 damages for alleged non-fulfilment of contract, in the construction of the Winifred, famous as the first American "tramp" steamer. The Winifred was constructed last year, the specifications calling for a vessel capable of maintaining a speed of 10 knots. On trial, with only water ballast on board, she easily attained 11½ knots, but the owners allege that since going regularly into commission she has made an average speed of only 7 knots and in consequence has caused them a vexatious loss of time and money. It is claimed in support of these allegations that the Winifred's best time in going from New York to Porto Rico has been 8 days or an average of less than 200 miles every 24 hours. In consequence of the filing of the suit an attachment was issued at New York last week against the steamer Salacia, owned by the Bath company, which was in port at the time. The Winifred, which is an exclusively freight carrier, cost in the neighborhood of \$160,000.

NEW DOCKAGE AT BUFFALO.

The announcement that an extension of the dock facilities at Buffalo is contemplated will be welcome news to the shipping interests of that city. The extension of the breakwater to Stony Point will make possible the fulfilment of an elaborate project mapped out by the Stony Point Harbor & Terminal Junction Railroad Co. Plans mapped out by this company will permit of the largest type of craft on the great lakes entering Blackwell canal or Buffalo river by a much more direct route than is at present available. The work of excavating the canal and building the docks and railroad connections is in the hands of Hingston & Woods and will occupy about a year's time. Much of the land controlled by the above mentioned company is under water, but it is claimed that inasmuch as the war department has now established the harbor and pier-head lines there will be little delay in placing bulkheads and filling in. A proposition is also under consideration for the construction of new docks at Squaw island.

CHECKS ON THE WEIGHING OF GRAIN.

At first thought it would seem that the checking of weights of grain in and out of elevators at the several terminal points on the great lakes should not require a great force of men specially skilled in the work, and yet it is a fact that there are hundreds of men so employed. This statement has reference, of course, to the men who keep a check on the weights, monitors so to speak, and not to the large forces employed by the elevators themselves. The work is important and of late years has advanced to a high degree of perfection, especially in Chicago. Geo. J. Le Beau, chief clerk for H. A. Foss, board of trade weigh master at Chicago, was in Cleveland a few days ago, following up an investigation regarding shortages in two or three cargoes that had been unloaded at Port Huron and Detroit.

"Considerable grain has been going from Chicago to Port Huron, Detroit and the other smaller receiving ports this spring," said Mr. Le Beau, "on account of the labor troubles at Buffalo. Differences regarding the outturn of grain are, of course, liable to occur anywhere, and we have no complaint to make about Port Huron or Detroit any more than Buffalo, but when we have large shipments to houses that are not regularly watched and a shortage is reported it is our business to investigate at once, seek tests of scales and otherwise try to locate the difficulty. Cargoes were not followed up in this way a few years ago, and there is not much of it done now excepting under the Chicago system, but the interests of our concern are such that we cannot afford to leave a stone unturned in the effort to locate an error as soon as it is reported. In this work at Chicago we employ throughout the season of navigation an average of nearly 100 men. All of them are thoroughly trained before they are entrusted with responsible places and they are themselves watched to see that they do not go wrong or become careless in the work. We look after the weighing of 80 per cent. of the Chicago grain and in order to hold this business with the vessel men we can not afford to let pass any opportunity to safeguard their interests."

KIPLING ON GRAIN SHOVELING AT BUFFALO.

In view of the attention directed to the Buffalo elevator industry by the strike that has been in progress there for some time past, interest attaches to the description of the process of handling wheat at Buffalo given by Rudyard Kipling in his American notes. The famous writer says:

"It was my felicity to catch a grain steamer and an elevator emptying that same steamer. The steamer might have been two thousand tons burden. She was laden with wheat in bulk; from stern to stern, 13 feet deep, lay the clean, red wheat. There was no 25 per cent. dirt admixture about it at all. It was wheat, fit for the grindstones as it lay. They maneuvered the fore-hatch of that steamer directly under an elevator, a house of red tin 150 feet high. Then they let down into that fore-hatch a trunk as if it had been the trunk of an elephant, but stiff because it was a pipe of iron-clamped wood. And the trunk had a steel shod nose to it, and contained an endless chain of steel buckets. Then the captain swore, raising his eyes to heaven, and a gruff voice answered him from the place he swore at, and certain machinery, also in the firmament, began to clack, and the glittering, steel-shod nose of that trunk burrowed into the wheat and the wheat quivered and sunk upon the instant as water sinks when the siphon sucks, because the steel buckets were flying upon their endless round, carrying away each its appointed morsel of wheat. The wheat sunk into the forehatch while a man looked—sunk till the brown timbers of the bulkheads showed bare and men leaped down through clouds of golden dust and shoveled the wheat furiously round the nose of the trunk, and got a steam-shovel of glittering steel and made that shovel also till there remained of the grain not more than a horse leaves in the fold of his nose-bag. In this manner do they handle wheat at Buffalo."

NEW ORLEANS SHIP YARD.

Mr. Robert C. Morris of New Orleans, one of the public spirited citizens of the Crescent city who has been instrumental in the movement for the establishment of a steel ship building plant and dry dock at the mouth of the Mississippi river, has been in the north and west during the past two or three weeks for the purpose of interesting practical men in the project. He says that capitalists at New Orleans as well as in New York and other cities have signified a willingness to invest as soon as they may pass upon the scope of the enterprise and the men who are to direct it. Mr. Morris has gained many "pointers" from the most capable ship builders in the country. At Chester, Pa., he had talks with President John B. Roach and with Mr. W. C. Sproul, the energetic vice president of the Roach yard; at Detroit he conferred with Mr. A. McVittie, and at Cleveland sought Mr. R. L. Newman, who is well and favorably known to New Orleans people as the builder of the sea-going tug R. W. Wilmot. It is understood that the New Orleans gentlemen are very anxious to secure the services of Frank E. Kirby, now in New York, for the designing and supervision of construction of the new plant.

Among several valuable features of a very creditable special number of the Iron Trade Review of Cleveland, issued last week, was a recapitulation of the work of consolidation that has been going on in the iron and steel industry for some time past. "So rapidly have the amalgamation movements in the iron trade been consummated," says the Review, "that the average member of the trade has found it well nigh impossible to hold in mind the properties gathered together, so as to assign them on call to their appropriate places. Responding to a call that has come from many quarters, we present a summary of the consolidations, so far as they have been completed. The record is not put forth as a finality; for it is entirely probable that the next few weeks will make further additions to it."

A visit to the national capital may be enjoyed without extra cost for fare in going to Philadelphia and New York over Pennsylvania short lines. Tickets to those points via Washington may be obtained at same fares as apply over Pennsylvania direct lines, and will be good for ten days' sojourn at the national capital. For particular information apply to Pennsylvania lines ticket agents or address C. L. Kimball, assistant general passenger agent, Cleveland.

NEW YORK STATE CANALS.

GOVERNOR ROOSEVELT'S COMMITTEE TAKES UP THE STRUGGLE AS TO WHAT IS BEST TO BE DONE WITH THEM—FIVE POSSIBLE SOLUTIONS OF THE PROBLEM.

The committee on canals of New York state, recently appointed by Governor Roosevelt and consisting of Francis V. Greene, chairman, Geo. E. Green, John N. Scatcherd and Maj. Thomas W. Symons of the United States engineer corps, has just issued an important circular letter dealing with five possible solutions of the problem of canal improvement. The letter will be widely circulated and opinions sought from everybody who has shown interest in the canal question. Headquarters of the committee are at 11 Broadway, New York. The letter dealing with the different plans of improvement is as follows:

"The governor of New York has requested this committee to report to him before the next meeting of the legislature what is best to be done about the canals. Briefly, the facts in the case are as follows: From 1817 to the end of 1882, when the tolls on the canals were abolished, the state had paid out for construction and enlargement of the canals the sum of \$78,685,580, and for superintendence and ordinary repairs the sum of \$48,399,286, and had received in tolls and other revenues the sum of \$135,418,325, leaving a net balance of income over outgo of \$8,333,457. The profit on the Erie canal at that time was more than \$42,000,000 over and above the cost of construction and maintenance, in addition to the indisputable benefits in the past to the commerce and prosperity of the state of New York. Since the tolls were abolished in 1882, the average annual cost for operation, repairs and maintenance (excluding interest charges) has been about \$1,034,000, of which \$802,000 has been paid from the ordinary repair fund and \$232,000 from the extraordinary repair fund.

"The tonnage on the canals has steadily diminished from 6,673,370 tons in 1872 to 3,360,063 tons in 1898. Until within the last few years the diminution has been chiefly on the smaller canals. The Erie canal, which carried 3,500,000 tons in 1871, had 3,235,000 tons in 1893; and the Champlain canal, which had 1,100,000 tons in 1871, carried 1,020,000 tons in 1892. Since 1893, owing to improvements on the railroads and the reduction of rail rates and the lack of improvements on the canals, the tonnage on these canals has also diminished; in 1898 the Erie canal carrying 2,300,000 tons and the Champlain canal about 800,000 tons.

"In 1895 the legislature authorized, and the people by vote, approved, the expenditure of \$9,000,000 for increasing the depth of the Erie and Oswego canals from 7 to 9 feet in the canal bed and 8 feet in the masonry structures, and 2 feet less in the Champlain canal. The appropriation is exhausted, and the work is stopped. The commission appointed last year by Governor Black consisting of George Clinton, Franklin Edson, Smith M. Weed, Darwin R. James, Frank Brainard, A. Foster Higgins and William McEchron, has reported that 36 per cent of the work is completed and 64 per cent is yet to be done, and that to complete this project, including suitable modern locks at Cohoes, Little Falls, Newark and Lockport, will cost approximately \$15,000,000. It is no part of our duty to state the reasons why this enlargement will cost so much more than originally estimated. These were fully stated in the report of the committee above named, which was published in August last. Our task is to study the question in the light of existing facts and recommend to the governor the best course to pursue under the circumstances as he found them on taking office. We shall endeavor to obtain and present in an intelligible form the necessary statistics of commerce and freight rates in order to form an intelligent judgment, and, in addition, we desire to have the opinion and advice of those who are competent to give them. It seems to us that there are five possible solutions of the problem:

"First—To complete the present project of enlarging the Erie, Oswego and Champlain canals at a further cost of \$15,000,000 (or \$24,000,000 in all). The benefits to be derived from this project are estimated by competent engineers at a saving of 1.11 cents per bushel of wheat from Buffalo to New York, or a reduction from the present cost of 1.8 mills per ton per mile to 1.0 mill per ton per mile, and a corresponding reduction in other traffic, on its capacity of about 15,000,000 tons per annum. It is understood that this present project includes the construction of pneumatic locks at Lockport and Cohoes, the lengthening of all other locks on the Erie and Oswego canals so as to take in two canal boats, each 115 feet in length, and these two canals made suitable for boats of a draught of 8 feet. This project provides for the Champlain canal draught of 6 feet, and a possible substitution of slack water navigation on the Hudson river wherever practicable between Fort Edward and Troy in place of the existing canal structure.

"Second—To enlarge the present locks on the Erie canal at once to a length of 260 feet, a width of 26 feet and a depth of 11 feet, making them suitable for boats 25 feet wide, 125 feet long, and 10 feet draught. This project would cost about \$6,000,000. It would permit the use of boats of 6 feet draught, as at present, but with increased width and length, and having a capacity of about 420 tons or 14,000 bushels of wheat, in place of 240 tons or 8,000 bushels of wheat, at present carried. It is estimated that the use of such boats would result in a saving of 1.1 cents per bushel of wheat, or a reduction to 1.0 mill per ton mile. With the locks thus enlarged, the question of increasing the size of the prism could be considered separately with the following results:

"(a) With the size of the canal prism increased so as to complete the existing project, making it suitable for boats of 8 feet draught, and of the length and width above stated; these would have a capacity of about 620 tons or 20,667 bushels of wheat, instead of 240 tons or about 8,000 bushels of wheat as at present. It is estimated that the use of such boats will result in a saving of 1¼ cents per bushel of wheat, or a reduction to 8-10 of a mill per ton mile. The cost of this work on the prism, outside of the locks, is estimated at about \$14,000,000, and its adoption would utilize and make available the work that has been done under the \$9,000,000 act.

"(b) With the size of the canal prism increased so as to make it suitable for boats of 10 feet draught and of the length and width above stated; these would have a capacity of about 820 tons or 27,333 bushels of wheat, instead of 240 tons or 8,000 bushels of wheat, as at present. It is estimated that the use of such boats will result in a saving of 1 4-10 cents per bushel of wheat, or a reduction to 7-10 of a mill per ton mile. The cost

of this work on the prism, outside of the locks, is estimated at about \$24,000,000; and its capacity at 20,000,000 tons per annum.

"Third—To construct a barge canal continuously descending all the way to the Hudson river from Lake Erie, with a depth of 12 feet, and suitable for barges of 1200 to 1500 tons, which can be towed on the lakes if desired. The cost of this is approximately estimated at \$50,000,000, and the saving at 1.55 cents per bushel of wheat from Buffalo to New York, or a reduction over present cost of 1.8 mills per ton mile to 0.6 of a mill per ton mile. Its capacity is estimated at 25,000,000 tons per annum.

"Fourth—To construct a ship-canal with a depth of 20 to 30 feet, suitable for lake and ocean vessels of 5,000 to 10,000 tons capacity. The cost of such a ship-canal, depending upon its size and the route adopted, is estimated at from \$200,000,000 to \$500,000,000. This ship-canal project is under consideration by the federal government, congress having appropriated \$240,000 for surveys and authorized the appointment of a Deep Water Way Commission, which is now vigorously prosecuting surveys along the Oswego-Mohawk and the Champlain routes, with a view to forming an accurate estimate of the cost.

"Fifth—To abandon the canals entirely, as has been done in some other states, and dispose of the property interests therein to private individuals or corporations on the best terms which can be secured, or to make some other use of the property for the benefit of the state.

"In view of the importance to the welfare of the state of New York, whose commerce relatively to that of other seaport cities, is diminishing, of a proper decision of this question, the committee feels justified in asking that you will give them in writing the benefit of your views on the propositions above suggested, or such other propositions as you may think will afford a proper solution of the problem."

SUMMER SCHEDULE OF GOODRICH LINE.

The schedule of Goodrich line steamers on Lake Michigan for the coming summer will be as follows:

The Christopher Columbus will be on the day run between Chicago and Milwaukee, leaving Chicago every morning at 9:30, returning will leave Milwaukee 4:30 p. m., arriving in Chicago 9:30 p. m. The Columbus has been thoroughly overhauled, having had eighteen parlor rooms built on hurricane deck forward, and an elegant dining-room in the forward cabin, with seating capacity of about one hundred.

The twin-screw steamer Virginia will be on the night run between Chicago and Milwaukee, leaving Chicago every evening at 9 o'clock; returning will leave Milwaukee at 9 a. m., arriving in Chicago 2:45 p. m. An upper cabin has been added to the Virginia, providing sleeping capacity for eighty-four more passengers than formerly.

The Iowa and Indiana will run alternate days between Chicago, Grand Haven and Muskegon, leaving Chicago 7:45 p. m., Muskegon 6 p. m., and Grand Haven 9 p. m. The Indiana has been thoroughly overhauled, an upper cabin with accommodation for eighty people having been added during the past winter.

The Georgia will run between Chicago and Mackinac island, leaving Chicago at 8:30 p. m., Saturdays, making all points along the west shore of Lake Michigan and all principal Green bay ports, and arriving at Mackinac Tuesday at 10 p. m. The Georgia will leave Mackinac south-bound Wednesday at 4 p. m. arriving in Chicago at 7 a. m. Saturday.

The Atlanta, Sheboygan and Chicago will run between Chicago and Green bay ports, stopping at all ports along the west shore of Lake Michigan. These steamers will leave Chicago as follows: Atlanta, Saturdays, 8 p. m., for Menominee; Sheboygan, Wednesdays, 8 p. m., for Green Bay; Chicago, Fridays, 8 p. m., for Escanaba.

RITCHIE COMPASSES.

A letter from E. S. Ritchie & Sons of Brookline, Mass., dealing with their specialties, says:

The Ritchie compass is well known and approved by navigators the world over. For over thirty-five years it has been the standard compass in the United States navy and during that time has by reliability and accuracy held its place against competition. Our latest form with six needles, made for the merchant service, makes it possible to adjust these compasses with great accuracy to meet the requirements of vessels of steel construction. Every compass of our make has "Ritchie, Boston, U. S. A." printed upon the card below the north point. Our Bar Azimuth circle for merchant service, used with graduated card compass, is a very perfect instrument at a low price and has the essential features of our standard circle used in the United States navy. We are also makers of pole, tell-tale and transparent compasses, magnetic instruments, Pelorus, Binnacles, etc.

The bureau of navigation, navy department, has issued a notice to the effect that there are wanted for service in the United States navy men qualified for the ratings of seamen, ordinary seamen, chief machinists, machinists of the first and second classes, chief electricians, and electricians of the first and second class. All candidates for enlistment must pass a physical examination, and seamen and ordinary seamen must pass examination in seamanship and must have had experience at sea. Enlistments may be made at the navy yards at Boston, Brooklyn, N. Y., Norfolk, Va., Mare Island, Cal., or on board the U. S. S. Michigan at Erie, Pa.

The revenue cutters Algonquin, Onondaga, Gresham, Manning and McCulloch, all new vessels, and the first three of which were built by the Globe Iron Works Co., Cleveland, will all be fitted with bilge keels. The Algonquin is now at the yard of the E. J. Codd Co., Baltimore, and will undergo repairs, including a new pilot house and some minor alterations in the interior.

One of the largest cargoes ever taken from the port of Norfolk, Va., was that of the British steamer Maplemore, which sailed a few days ago with more than 9,500 tons of freight. She drew 28.9 feet of water.

During the month of April more than 800 vessels arrived at the port of Boston.

ORE TRIMMING AT ESCANABA.

Since the ore trade has been confined largely to big vessels, the trimming of cargoes has to a very large extent been done away with. The labor engaged in this work at several of the upper-lake ports is feeling the loss, as indicated by letters on the subject received recently by Cleveland vessel owners. It would seem, however, that the owners of the large ore carriers are now so well satisfied that they can be operated without trimming, that little if any labor of this kind will be required after the present season. One letter on the subject, from Mayor John M. Hartnett of Escanaba, to a Cleveland firm is as follows:

"There is considerable dissatisfaction existing among the men who follow ore trimming as an occupation, on account of what they consider an injustice that is being done them, and I have been requested by a number of representative business men to take a hand in the matter, and see if some satisfactory solution of this perplexing problem can be arrived at. It is represented to me by local trimmers that at a meeting of their representatives and those of the vessel owners' association, last winter, an understanding was arrived at whereby the trimming of boats in the ore trade would be more generally done than heretofore. If such an agreement was made—and I have no information at hand except that furnished by the trimmers at this port—it has not been adhered to, and as a consequence, the dissatisfaction among the men that I speak of.

"It has been a serious loss to this city since the ore-trimming at this port has so materially decreased. I understand, of course, that during the general business depression, lake freights were low, and as a consequence, economy was necessary in the management of the vessels engaged in the ore traffic, but inasmuch as there is now a decided improvement in all lines, and which presumably also applies to that certain line of business, our people are of the opinion that the differences that have existed in the past between the vessel owners and the trimmers, can be adjusted, the former may see their way clear to again establish this important industry. I have had several conferences with the men, and I am satisfied that they are disposed to act fairly and reasonably in the matter. I cannot speak authoritatively, but I feel safe in venturing the assurance that a satisfactory rate can be agreed upon, if the conflicting parties can be brought together in a full and clear discussion of the matter. I have also had this matter up with Mr. H. A. Barr, the agent of the Chicago & Northwestern Ry. at this port, and he has given me the privilege of using his name as a reference to substantiate the statements that I make.

"I am not sufficiently acquainted with the details of the business to discuss intelligently the many phases of the matter, but from what I can glean from personal observation and other methods of acquainting myself, I understand that the dispatch that boats could receive by trimming, and the wear and tear on them incident to their not being trimmed, would more than repay the amount paid for trimming. As to that, you are more familiar, but if you can see your way clear, as a business proposition, to consider this matter, and a satisfactory conclusion can be arrived at, I can assure you that I speak for the best interests of Escanaba when I say that it will return to us an industry the loss of which has been sorely felt. I would be glad to have you take the question up with Mr. Barr, and I feel positive that with him representing the vessel men, if you so choose, and myself the business men, as well as the ore-trimmers, a conference can be had that will result profitably to all concerned. I would not trouble you with this matter were it not of so much importance in the channels of trade in Escanaba, and I hope you will not consider it interference on my part for addressing you on this question."

THE INDUSTRIAL CONSOLIDATIONS.

Speculation in industrial securities at the stock exchanges of the country unquestionably received a blow about a month ago when the money market interfered with the facilities for effecting speculative purchases of such stocks. It was thought at the time that the process of forming and launching new industrial combinations would also be materially checked. While it is true that the class of promoters who had sprung up within a few months, and who were seeking options upon business establishments in every possible line of trade and manufacture for the purpose of bringing such concerns together in so-called trusts with a more or less inflated capitalization, are not by any means as active as they were, there is still a sufficient number of new industrials making their appearance from week to week, and even from day to day, to cause some misgivings to the conservative element in the financial community. It must be admitted, however, that the concerns of this character which have been brought out during the past month or so are, on the whole, of a more stable character, or have, at least, better financial support than some of the earlier organizations of the same general character. The great copper combination, which was one of the events in the financial world a few days ago, was a case in point. That incorporation has the active support of some of the foremost financiers of the country, and will have the benefit of the capital which they command or influence, as well as their active participation in the company's management. It is to be presumed that such circumstances will go far toward giving the company's securities an established position as material for speculation or investment, as well as to modify in their behalf the rather pronounced hesitation of banks and other lenders of money about accepting industrial stocks as collateral for loans.

It has been pointed out that in nearly all instances the success of industrial consolidations is a question of management, pure and simple. Indeed, it is quite possible that some of our new industrials are likely to prove a disappointment, both to their constituent elements and to that portion of the public which invests in their shares solely because the degree of force and talent of a business kind, which is common enough as regards the conduct of comparatively small individual undertakings, is unquestionably rare where the field is a wider one and the object sought is the harmonious and successful operation of a large number of concerns in one particular line. Such considerations have been disregarded by the financial interests which are caring for the formation of some of the new incorporations, or the practical people who constitute what might be termed the working staff of their managements. In many cases a concentration of control, as regards the details of business, is secured by committing such matters to an executive committee of limited member-

ship, intended to take the place of the single-headed responsibility that is a real necessity in a great many business enterprises, great or small. The present year, however, is likely to develop the problem as to whether a majority of the new industrial combinations have been wisely created, and to what extent the question of management has been successfully solved.—Bradstreets.

BROAD VIEW OF THE SUBJECT OF SHIP-CANALS.

Mr. E. L. Corthell, well known on account of his connection with engineering work pertaining to ship-canals, has an article in the April number of the Engineering Magazine on the "Physical and Commercial Aspects of Ship-Canals." The article treats briefly of the history, physical conditions, cost, commercial aspects and other features of the principal ship-canals of the world, including the Suez, North Sea or Amsterdam, Corinth canal, Kaiser Wilhelm and Manchester canals. "The severance of the American isthmus seems assured," Mr. Corthell says, "and with the completion of an adequate and easily navigable ship-canal from the Atlantic to the Pacific will come changes and expansions in the commerce of the world which can, as yet, scarcely be conjectured. Experience has amply proved that increased facilities create new traffic, greater as the gain in time, safety, or facility becomes more considerable. In a case where the change is so great and far-reaching as that which will be made by the completion of a trans-isthmian water route, data of existing tonnage carried are of little value as a guide to an estimation of the traffic or the financial profit of the undertaking."

In line with the foregoing argument it is said that the subject of ship-canals is gradually attaining its true position in the public mind, and it is beginning to be seen that works of such magnitude must necessarily be of slow growth, and cannot be promoted and exploited in a manner similar to ordinary business enterprises; that viewed in the ordinary light of an investment operated for the sole purpose of returning immediate dividends upon the shares representing the capital used in the construction, the ship-canal can in many cases be demonstrated to be a most unprofitable sort of a hole in which to bury good money; and that if further considered in the far broader view of its effect upon the development of civilization, it is beginning to be realized that the profit of such enterprises cannot be measured by a direct money value, dealt out in the form of interest or dividends, but must appear in the deeper, slower, but far more powerful influence upon the business of future years.

"It has been shown," Mr. Corthell says, "that nearly all the existing canals met with opposition in their inception, and with meagre financial returns when first operated, yet who can doubt that they have been for the general good of nations and commerce? It is with great engineering works as with great political events, the very nearness prevents a true estimate of importance, and it is only when sufficient time has elapsed that the real value of any great project can be correctly determined. Thus it was with the early history of internal waterways, with railways, and with nearly all the ship-canals which have yet been constructed; and so it will doubtless continue to be with any isthmian canal, whatever route may be selected. It is only when considered in the broad light of its ultimate effect upon the welfare of mankind and the commerce of the world that a true conception of the importance of the waterway through the American isthmus can be grasped."

Howard F. Sprague, the marine artist whose death was announced from New York a few days ago, began making pictures of ships on the docks at Huron, O., some ten or twelve years ago. His home as a boy was at Huron, but since his pictures, first reproduced in the columns of the Marine Review, attracted attention, he was constantly moving around the country. He painted pictures of lake steamers by the hundred, some of them very good, and after leaving the lakes managed to have a great deal of his work accepted by eastern magazines. Death came suddenly after his return to New York from the West Indies, where he had been on the flagship New York with Sampson's squadron. He was thirty years of age.

On Friday last Capt. Alex. McDougall formally turned over to the American Ship Building Co. (consolidated lake ship yards) the affairs of the American Steel Barge Co. at West Superior. From now on he will give active attention to a vessel agency business at Duluth, which he formerly carried on successfully for ten years before bringing about the organization of the American Steel Barge Co. The vessel agency will be known as Alex. McDougall & Co. Mr. W. A. Thompson, Jr., is associated with Capt. McDougall in this work.

Two new cruisers have been ordered for the German navy, and keels will be laid immediately at Kiel and Bremen. The vessels, which are to be completed in 1901, will be of 2,800 tons displacement each and will be fitted with 6,000 horse power engines which are expected to drive them at a speed of 20 knots.

The highest speed yet attained by any vessel building for the British navy was 34.28 knots, recorded during the recent trial of the torpedo boat destroyer Albatross. The vessel, which was built by Thornycroft & Co., is 227 feet in length, 21 feet 3 inches beam and 8 feet 6 inches draught.

Enlargement of the dry dock of the Chicago Ship Building Co. at South Chicago is under way. The enlarged dock will measure 510 feet on keel blocks, 530 feet over all, 70 feet width at gate and 100 feet width at top. Draught of water over sill will be 16 feet at all times.

The navy department has abandoned the project of having the gun-boat Nashville ascend the Ohio river as far as the falls at Louisville, owing to the announcement that the river has fallen considerably all the way from Pittsburg to Cairo.

The Richelieu & Ontario Navigation Co. announces that it will inaugurate its daily service between Toronto and Montreal about the middle of June. The new steamer Toronto is being put in readiness for her initial trip.

CURRENT SHIP YARD OPERATIONS.

Plans have been prepared for a new steamer to be constructed for the Weems Steamboat Co. of Baltimore, Md. She will be 200 feet in length, 31 feet beam, 40 feet beam over guards, 12 feet 3 inches in depth, and will have a draught of 7 feet forward and 7 feet 9 inches aft. The hull will be of mild steel and the vessel will have four water-tight bulkheads. She will be fitted with triple expansion engines, with cylinders 19, 28 and 45 inches in diameter by 24 inches stroke. Much of the interior finish will be in either cypress or North Carolina pine. Forty state rooms will be provided on the promenade deck. The vessel will cost in the neighborhood of \$200,000 and the Harlan & Hollingsworth Co. of Wilmington, Del., are mentioned as probable recipients of the contract.

Lewis Nixon now has under construction at his Crescent Ship Yard, Elizabethport, N. J., a novel type of coal barge for the United States navy. The vessel, which is of steel throughout, is 150 feet in length by 30 feet beam and will have a draught loaded of 10 feet. It may be employed in putting coal aboard a war ship either at the wharf or at sea, by means of an endless chain system, there being provided also an automatic arrangement whereby coal is weighed as it is put aboard the vessel. The carrying capacity of the boat will be in the neighborhood of 1,000 tons. The monitor Florida and the two torpedo boats building at the Nixon yard will be ready for launching in about a month.

Reports that have been in circulation in Philadelphia of late to the effect that the William Cramp & Sons Co. will secure considerable additional land with a view to an extension of their plant are not denied by officers of the company. It is known that the capacity of the present plant is most severely taxed by the immense amount of work on hand and particularly is this true since the company secured the contract for three large steamers for Hawaiian service. The report sent out last week that the Ward line would in the near future award to the Cramp company the contract for four large steamers, two for the Mexican and two for the Cuban trade, appears to be unfounded.

Bidders on the new dry dock to be erected by the Skinner Ship Building Co. of Baltimore, Md., include T. B. Jones, Col. Lawrence B. McCabe, John McCabe and Gill & Thomas of Baltimore; McIlvain & Unkefer of Pittsburg; C. H. Fast & Sons, Neal, Norton & Co. of Cleveland; and Chapman Bros. of Buffalo. Stone masonry will be utilized and the dock will be over 300 feet in length.

Richard Stevens' handsome steam yacht Aileen, which was successfully launched at the Roach ship yard, Chester, Pa., a few days ago, was christened by Miss Dorothy W. Sproul, daughter of State Senator W. C. Sproul, who is vice-president of the Roach yard. Little Miss Sproul is a grand-daughter of the veteran ship builder John Roach.

The Pusey & Jones Co., Wilmington, Del., which a few days ago received orders from the Pennsylvania Co. for four grain barges, has just received additional commissions for two house lighters, each 102 feet in length, 31 feet 4 inches beam and 8½ feet deep. The merchandise house on each will be 81 feet long and 10 feet high.

Percy & Small, Bath, Me., have launched the five-masted schooner M. D. Cressy. She is 264 feet in length, 43 feet beam and 21 feet depth. The vessel, which will cost in the neighborhood of \$85,000, is fitted with all modern improvements, including the various auxiliaries manufactured by the Hyde Windlass Co.

Wyckoff Bros. of Clinton, Conn., have secured a contract for a 54-foot yacht for Harold Brown of Boston. The craft will be fitted with a 40 horse power four-cylinder Empire marine gasoline engine and is expected to develop a speed of 12 miles an hour.

The Fore River Engine Works, Weymouth, Mass., is making extensive improvements to its plant. Among machinery recently added is a large lathe built by the Fitchburg Machine Co. of Fitchburg, Mass., and a steam hammer of considerable weight.

Calvin Adams of Eastport, Me., will build a steamer for the Continental Packing Co. of Eastport. She will be 45 feet long, 10 feet beam and 4 feet deep and will be fitted with a 6 x 6 high pressure single engine, built by John McKinney of Eastport.

After undergoing an entire rebuild at a cost of \$10,000, the Bangor & Bar Harbor Steamboat Co.'s steamer Cimbria, which was partly wrecked at Bass Harbor, Me., last autumn, has been launched from Stetson's marine railway at Brewer, Me.

George E. Currier & Son of Newburyport, Mass., who recently closed a contract to build a 1,600-ton schooner, have just engaged to construct for the Cape Ann Granite Co. a freight steamer 108 feet in length, 30 feet beam and 7 feet deep.

An 80-foot tug is being built by Heckman & Hanson at Ballard, Wash., for E. E. Caine. The vessel will be used as a tender at the Great Northern docks at Smith Cove, which are described elsewhere in this issue.

DROP FORGINGS TO ORDER

STANDARD

Wrenches, Hoist Hooks, Sockets, Eye Bolts, Shafting Collars, Machine Handles, Thumb Screws and Nuts, Swivels, &c., &c.

KEYSTONE OPEN LINKS.
Send for Catalogue and Discounts.

1886.



SPECIAL

FORGINGS OF ALL KINDS.

Send Model or Drawing and
Get our Prices.

May Reduce Present Cost.

KEYSTONE DROP FORGE CO., 19th and Clearfield Sts.
PHILADELPHIA, PA.

WRECKERS AIR BAGS.

1,000 tons lift in stock. Low rental or share of salvage. Belting, Hose, Packing, full line of best rubber at factory prices.

MINERALIZED RUBBER CO., N. Y.

The torpedo boat Dahlgreen, building at the yard of the Bath Iron Works, Bath, Me., will be launched in about two weeks, according to a letter received by the Review from Superintendent Charles R. Hanscom.

The yacht building at the Bath Iron Works, Bath, Me., for Isaac Stern of New York City will be named the Virginia.

Butler & Co., Rockland, Me., have the contract for a schooner for Capt. J. H. Burgess of Onset, Mass.

NEW CARNEGIE STEEL CO.

Moore Bros. of Chicago have opened subscriptions to the underwriting of the reorganized Carnegie Steel Co. Subscription books have been opened simultaneously in Chicago, New York, Philadelphia and Pittsburg. The total capitalization is \$625,000,000, of which \$100,000,000 is in 5 per cent. bonds, \$250,000,000 in 6 per cent. non-cumulative preferred stock, and \$275,000,000 in common stock. The subscribers for 100 shares of preferred stock will pay into the company \$10,000 and receive in return 100 shares each of preferred and common stock. Under the terms of the subscriptions the money is payable when a call is made at the First National Bank in New York, the Union Trust Co. in Pittsburg, the Illinois Trust & Savings Bank in Chicago, the First National Bank in Philadelphia, and the Old Colony Trust Co. in Boston. The company secures \$15,000,000 in cash as working capital, and all the assets, including stock on hand and collectable accounts of all the companies included in the consolidation. Three separate examinations have been made by different committees of experts, who have gone carefully into the production of ore, pig iron and finished steel. The reports show that on present prices for iron and steel, the company will earn between \$40,000,000 and \$45,000,000 a year. The interest requirement on the bond issue of \$100,000,000 is \$5,000,000, and the 6 per cent. dividend on \$250,000,000 of preferred stock will require annually \$15,000,000, or a total charge of \$20,000,000 ahead of the issue of common stock.

Considerable interest will attend the operation of the barge Aurania, owned by John Corrigan of Cleveland, and which has just been transformed into a steamer by the Detroit Ship Building Co. With quite an expenditure for the strengthening of the hull of this vessel, ordered by Capt. Herriman, chief inspector of the Great Lakes Register, she will stand her owners about \$170,000. It is claimed that she could be sold now for close to \$225,000. Her performance will admit of some definite information being secured on the score of whether it is more economical to tow a vessel 10 miles an hour than to have her steam 10 miles an hour on power similar to that applied to the America.

Peter King, at one time one of the best known ship builders in New York City, died recently in that city. His firm built the steamers Bristol and Providence, famous in their day, and at one time built all the Jersey City and Staten island ferryboats.

The Snow Steam Pump Works of Buffalo has granted its 400 employees an advance in wages ranging from 5 to 10 per cent.

JAMES MCKAY & CO.

Manufacturers of all kinds of

High Grade Boom, Rafting, **IRON CHAINS.**
Toggle, Marine and Swedish



Write for Prices. PITTSBURG PA.

REMOVAL NOTICE!

MAY 1st

MANNING, MAXWELL & MOORE,

THE CONSOLIDATED SAFETY VALVE CO.

Nickel Seated "Pop" Safety Valves, Locomotive Safety Valves, Water Relief Valves.

THE SHAW ELECTRIC CRANE CO.

Shaw (3) Motor Electric Traveling Cranes.

THE HAYDEN & DERBY CO.

Metropolitan Injectors, H-D Ejectors.

THE PEDRICK & AYER CO.

Special Railway and Machinists' Tools, Air Compressors, Air Hoists, Riveters, etc.

THE ASHCROFT MFG. CO.

Steam and Vacuum Gauges, Edison Recording Gauges, Tabor Indicators, Moscrop Recorders, Pipe Fitters' Tools.

Have Removed New York Office and Salesrooms
From 111-113 Liberty Street,

To 85, 87, 89 Liberty St., CORNER
BROADWAY,
NEW YORK.

CHICAGO OFFICE:
22-24-26 So. Canal Street.

PITTSBURGH OFFICE:
Park Building.

CLEVELAND OFFICE:
26 South Water Street.

A general catalogue descriptive of the Queen City hydraulic steering engine as well as the steam pumps manufactured by the Queen City Engineering Co. of Buffalo, has just been issued by that company. It is a neat little book of about twenty pages, well arranged and with every illustration showing up clearly, both from a mechanical and printer's standpoint. The several types of boiler feed pumps, low service or tank pumps, tannery pumps, single-cylinder high pressure pumps, etc., manufactured by the Queen City company, are described and illustrated.

Capt. Alex. Clark has retired from the firm of Clark & Hall, vessel agents of Buffalo, and Mr. Harry B. Root is now associated with Capt. John B. Hall. The firm now is Hall & Root. The old offices at No. 55 Main street are retained and the business will go along without interruption.

Among a large number of orders received during the past week by the Chicago Pneumatic Tool Co. were orders for eight pneumatic riveters for Shanghai, China. This will make quite a number of tools shipped by the Chicago company to that country during the past year or so.

The Shelby Steel Tube Co. of Cleveland is furnishing seamless cold-drawn steel tubes for the Niclausse water-tube boilers that are to be installed in the battleship Maine, building for the United States government at the works of Cramp & Sons, Philadelphia.

WHERE THE REVIEW IS FOR SALE.

The exigencies of the season of navigation force many readers of the Marine Review to depend upon the news stands for their copies of the paper from week to week. Special agencies have therefore been established in all the large cities, where the latest issue of the paper is always to be had and where subscriptions or advertisements for the liner columns may be entered at the regular rates. Agencies thus far established are: Mosses Dryfoos, Erie, Pa.; Lundberg & Stone, 223 West Superior street, Duluth, Minn.; Geo. L. Wilton News Co., West Bay City, Mich.; Geo. W. Wirts, 2 Ohio street, Buffalo, N. Y.; H. M. Johnson, 433 Tower avenue, West Superior, Wis.; Russell Bros., 804 Tower avenue, West Superior, Wis.; Bennett & Co., 214 West Superior street, Duluth, Minn.; Post Office News Co., Dearborn street, Chicago, Ill.; Crossley Bros., Newport News, Va.; J. E. Ray, 460 Detroit street, Cleveland; J. H. Officer, 2207 Richmond street, Philadelphia; Wolverine News Co., 72 Congress street, Detroit; H. L. Humphrey, Paine avenue and Front street, East Toledo, O.; D. Geiger, 9919 Ewing avenue, South Chicago; O. L. Mead, Lorain, O.; John P. McKenna, 151 Yonge street, Toronto, Ont.; K. H. Hubbard, 508 Water street, Port Huron, Mich.; J. P. Haller, 84 Ashmun street, Sault Ste. Marie, Mich.; Chas. McFadden, 375 Reed street, Milwaukee, Wis.

A handsome catalogue of rock drills and drill mountings has just been issued by the Rand Drill Co., New York.

A SPECIALTY:

TOWING
AND
SHIPS'
HAWSERS
LINES

ROPE

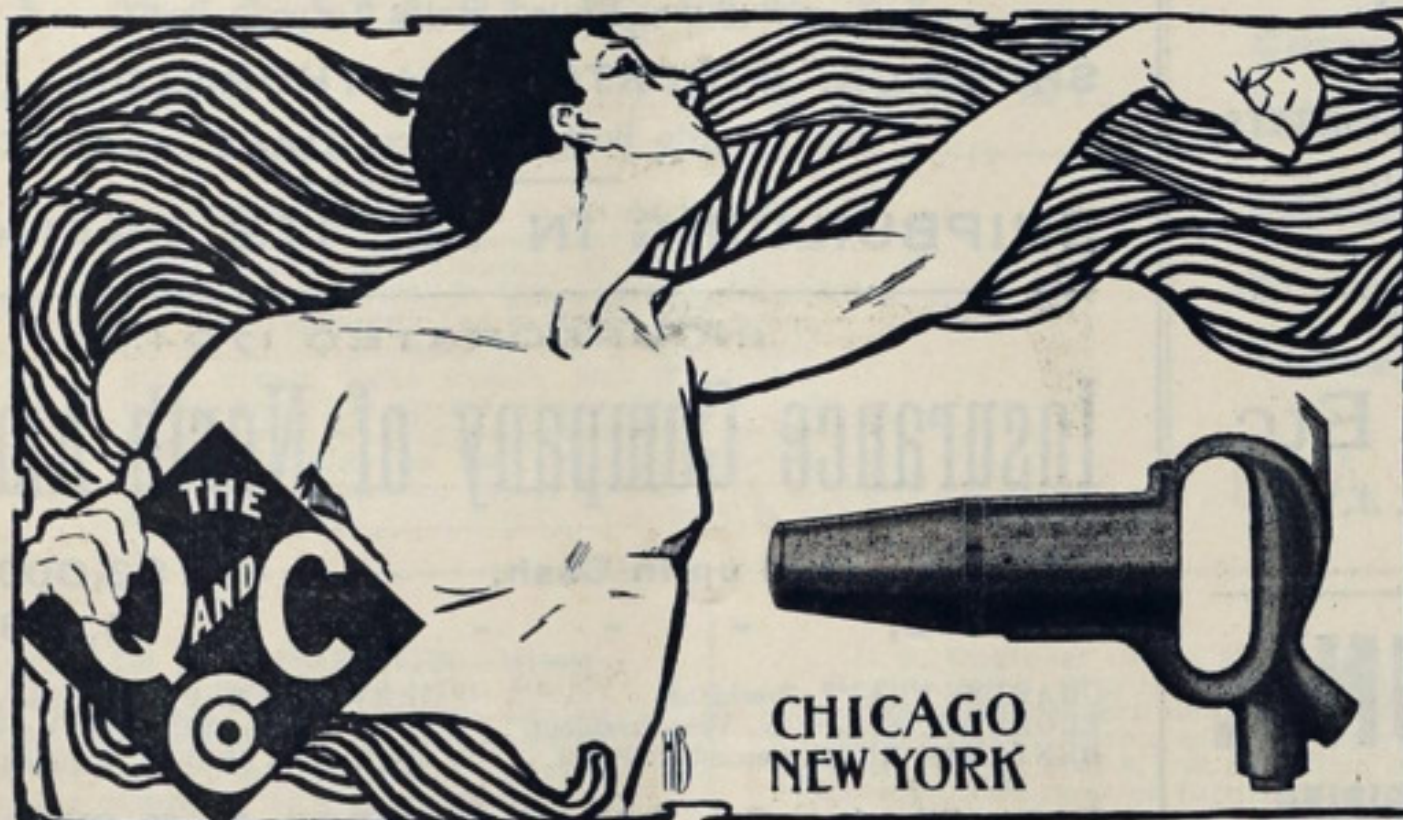
THE AMERICAN MANUFACTURING CO.

67 WALL STREET, NEW YORK.

THE LARGEST MANUFACTURERS OF FIBER IN THE WORLD.

A SPECIALTY:

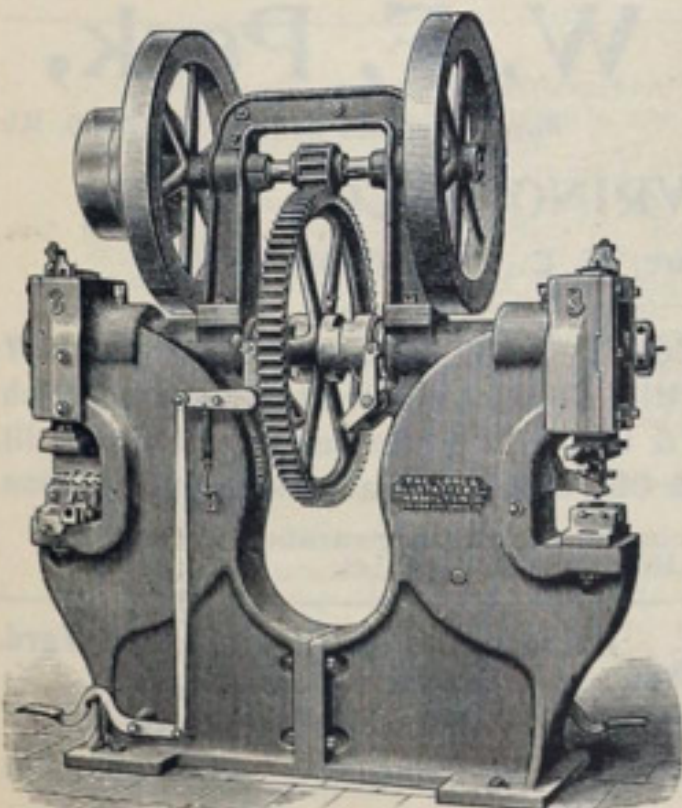
4-STRAND
PLUMBAGO
HEART
HOISTING
ROPE
FOR
CARGO FALLS



PNEUMATIC TOOLS

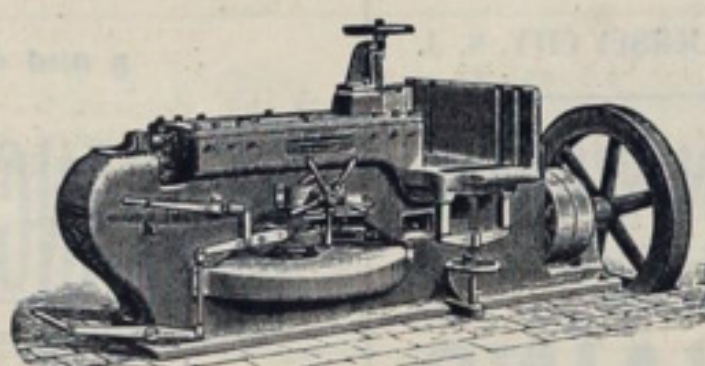
FOR RIVETING · CHIPPING
CALKING · BEADING FLUES
CUTTING STAY-BOLTS · CHIPPING
IRON AND STEEL CASTINGS
STONE CUTTING · CARVING
AND LETTERING ·

LABOR-SAVING



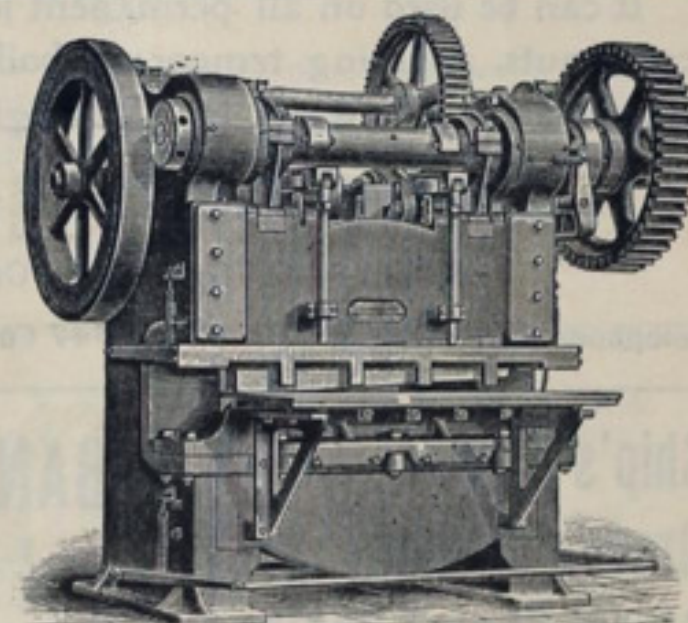
PUNCHES

NEW CATALOGUE
NOW READY.



MANUFACTURED BY

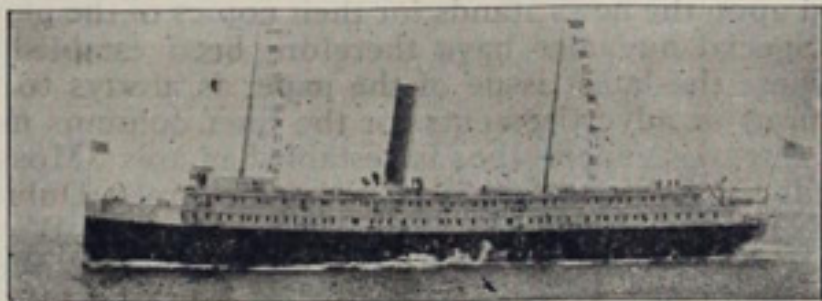
SHEARS



For All Kinds of Work.

THE **LONG & ALLSTATTER CO.,** HAMILTON OHIO.

ROACH'S SHIP YARD.



DELAWARE RIVER
—IRON—
SHIP-BUILDING &
ENGINE WORKS,
CHESTER PA.

Builders of Steamships and Marine Machinery.

SHIP-BUILDING IN ALL ITS BRANCHES.

New York Office, Morgan Iron Works, Foot East Ninth St

Newport News Shipbuilding & Dry Dock COMPANY.

WORKS AT NEWPORT NEWS, VA.
(On Hampton Roads.)

Equipped with a Simpson's Basin Dry Dock capable of docking a vessel 600 feet long, drawing 25 feet of water, at any stage of the tide. Repairs made promptly and at reasonable rates.

SHIP AND ENGINE BUILDERS.

For estimates and further particulars, address

C. B. ORCUTT, Pres't,
No. 1 Broadway, New York.

The Pusey & Jones Company,
WILMINGTON, DELAWARE.

Builders of IRON AND STEEL STEAMERS, STEAM YACHTS,
TOW BOATS, MARINE ENGINES, BOILERS, TANKS,
AND OF HEAVY MACHINERY GENERALLY.

ALSO COPPERSMITH WORK.

SPECIAL FACILITIES for REPAIRS to both WOODEN and METAL BOATS.
MARINE RAILWAY. NO WHARFAGE CHARGED.

W. & A. FLETCHER CO.

NORTH RIVER IRON WORKS.

Marine Engines, Boilers, Etc.

Hudson, 12th and 14th Streets, Hoboken, N. J.

Take Ferry from foot of West 14th Street, N. Y

SMOOTH ON COMPOUND.

FOR MAKING PERMANENT REPAIRS ON BOILERS OR PIPING.

It can be used on all permanent joints, main stay braces, stay screw nuts, applying temporary boiler patches, and repairing defective castings. Write for Catalogue. Manufactured by

SMOOTH ON MFG. CO.,

VREELAND TOMPKINS, CHEMIST AND MANAGER

Telephone 804 BERGEN.

547 Communipaw Ave., JERSEY CITY, N. J.

Ship's Cables
Dredge Chains
Steam Shovel Chains
Crane Chains
Block Chains

LEBANON CHAIN WORKS,
LEBANON, PA.

MANUFACTURERS OF

HAND-MADE AND
MACHINE-MADE **CHAINS**

OF ALL GRADES.

WE MANUFACTURE OUR OWN IRON.

All our Chains are tested. High Grade Chains a Specialty

THE HARLAN & HOLLINGSWORTH CO., SHIP BUILDERS, DRY DOCKING, REPAIRING AND OUTFITTING.

(3-4 CENTURY EXPERIENCE)

WORKS AND MAIN OFFICE,
WILMINGTON, DEL.

NEW YORK OFFICE,
Exchange Court Building,
52 BROADWAY, ROOM 702.

UNION IRON WORKS SHIP BUILDERS, SAN FRANCISCO.

WM. R. TRIGG COMPANY,
SHIP BUILDERS, RICHMOND, VA.
Government Contractors,

Building United States Torpedo Boats

SHUBRICK, STOCKTON and THORNTON,
and Torpedo Boat Destroyers DALE and DECATUR.

SHIPBUILDING IN ALL ITS BRANCHES.

INCORPORATED 1794.

Insurance Company of North America.

CAPITAL, Paid up in Cash, - - \$3,000,000.00
ASSETS, - - - - 10,173,488.90

CHARLES PLATT, President.
EUGENE L. ELLISON, Vice-President.
BENJAMIN RUSH, Second V.-Pres't.

GREVILLE E. FRYER, Sec'y & Treas.
T. HOWARD WRIGHT, Marine Secretary.
JOHN H. ATWOOD, Assistant Secretary.

Lake Marine Department. **GEORGE L. McCURDY, M'gr,**
CHICAGO, ILLS.

Chas. E. & W. F. Peck,

58 William St., NEW YORK CITY.

Royal Insurance Building, CHICAGO, ILL.

C. T. BOWRING & CO.,

5 and 6 Billiter Avenue, E. C., LONDON, ENG.

INSURANCE

BROWN & CO., . . 202 Main Street, Buffalo, N. Y.
PARKER & MILLEN, 15 Atwater St., W., Detroit, Mich.
J. G. KEITH & CO., 138 Rialto Building, Chicago, Ill.
LA SALLE & CO., Board of Trade Bldg., Duluth, Minn.

Are prepared to make rates on all classes of Marine Insurance on the Great Lakes, both CARGOES and HULLS.

Frank McWilliams, Balance Dry Dock and Ship Yard.
CAPACITY, 2000 TONS.

AT WEST NEW BRIGHTON, STATEN ISLAND, N. Y.

Estimates Given on New and Old Work, NEW YORK OFFICE, NO. 1 BROADWAY. Telephone Connections.

Youghiogheny River Coal Co.,

MINERS AND SHIPPERS OF

OCEAN MINE YOUGHIOGHENY COAL

GAS AND STEAM

GENERAL OFFICE, ERIE, PA.
SHIPPING DOCKS, ASHTABULA, O.

Long Dist. Tel. No. 409.
Long Dist. Tel. No. 76.

VESSELS FUELED at all hours with **OCEAN** Coal only, by Steam Lighter or Car Dump. Electric Light.

Pickands, Mather & Co.,

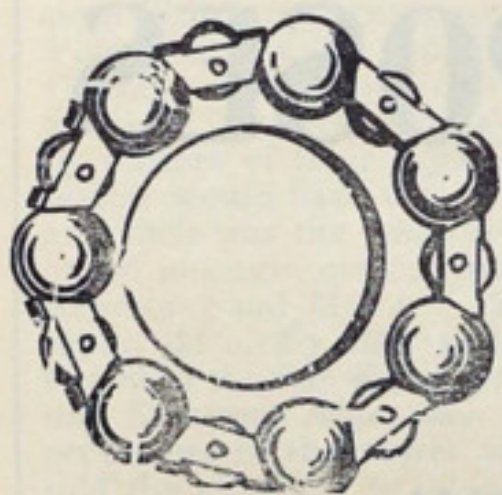


FUEL LIGHTERS

AT BUFFALO,
ERIE,
ASHTABULA
AND CLEVELAND.

At DETOUR, MICH., A FUEL DOCK equipped with
Shute capacity of 600 Tons.
Best Quality PITTSBURGH COAL furnished at any
time during Day or Night.

Western Reserve Building, CLEVELAND, O.



THE

"Cleveland"

A BICYCLE BUILT TO LAST.

Our New BURWELL BALL AND ROLLER

BEARING Saves One-Half your Labor.

1899 PRICES:

\$35.00, \$40.00, \$50.00, \$75.00

H. A. LOZIER & CO.,

Phone M. 816.

277-279 ERIE ST.

Sealed proposals will be received at the office of the Light House Board, Treasury Department, Washington, D. C., until 2 o'clock, p. m., June 10, 1899, and then opened, for furnishing the material and labor of all kinds necessary for a first class steel steam light vessel, No. 72, in accordance with specifications, copies of which, with blank proposals and other information may be had upon application to F. J. Higginson, Rear Admiral, U. S. N., Chairman. May 25.

PROPOSALS FOR DREDGES.—Mississippi River Commission, Fullerton Building, St. Louis, Mo., April 19, 1899. Sealed proposals, in triplicate, for construction and delivery of two self-propelling hydraulic dredges complete with machinery, cabin, outfit, etc., will be received here until 12 o'clock noon, standard time, May 31, 1899, and then publicly opened. Information furnished on application. Mason M. Patrick, Capt., Engrs, Sec'y. May 25.

U. S. Engineer Office, Milwaukee, Wis., April 20, 1899. Sealed proposals for Harbor of Refuge Milwaukee Bay, Wis., breakwater construction; Racine Harbor, Wis., crib pier, breakwater, removal of old pier, and dredging; Kenosha Harbor, Wis., pile and crib piers, crib breakwater, removal of old pier, and dredging; will be received here until 12 o'clock noon, standard time, May 25, 1899, and then publicly opened. Information furnished on application. J. G. Warren, Capt., Engrs. May 18.

SEALED proposals for furnishing about twenty-four thousand tons of armor for naval vessels will be received at the Navy Department until 12 o'clock, noon, Wednesday, May 31, 1899, when they will be publicly opened. Forms of proposal and all information may be obtained from the Chief of the Bureau of Ordnance, Navy Department, Washington, D. C. Chas. H. Allen, Acting Secretary. 3-29-99—May 18

U. S. Engineer Office, 57 Park St., Grand Rapids, Mich., May 10, 1899. Sealed proposals for repairing Government Piers at Holland, (Black Lake), Mich., will be received here until 3 p. m., June 9, 1899, and then publicly opened. Information furnished on application. Chester Harding, Capt., Engrs. June 1.

U. S. Engineer Office, 1637 Indiana Ave., Chicago, Ill., April 25, 1899. Sealed proposals for dredging in Calumet River will be received until noon (central time) May 25, 1899, and then publicly opened. Information furnished on application. W. L. Marshall, Maj., Engrs. May 18.

U. S. Engineer Office, 185 Euclid Ave., Cleveland, O., May 12, 1899. Sealed proposals for constructing part of West Breakwater at Conneaut Harbor, Ohio, will be received here until 2 o'clock, p. m., central standard time, June 12, 1899, and then publicly opened. Information furnished on application. Jared A. Smith, Col., Engineers. June 8.

U. S. Engineer Office, 185 Euclid Ave., Cleveland, O., May 12, 1899. Sealed proposals for constructing part of West Breakwater at Fairport Harbor, Ohio, will be received here until 2 o'clock p. m., central standard time, June 12, 1899, and then publicly opened. Information furnished on application. Jared A. Smith, Col., Engrs. June 8.

The W. L. SCOTT COMPANY ERIE, PA.

WHOLESALE DEALER IN

SHAMOKIN
ANTHRACITE
WILKESBARRE

COALS

YOUGHIOGHENY
PITTSBURGH
MANSFIELD.

VESSEL FUELING A SPECIALTY By STEAM LIGHTER or Car Dump at All Hours. Electric Light.

Main Office, Scott Block, Long Distance Telephone No. 440.
Fueling Office, Canal Dock, Long Distance Telephone No. 320.



Steamboat Fuel at Ashtabula, LARGE SUPPLIES OF BEST QUALITY.

Lighter

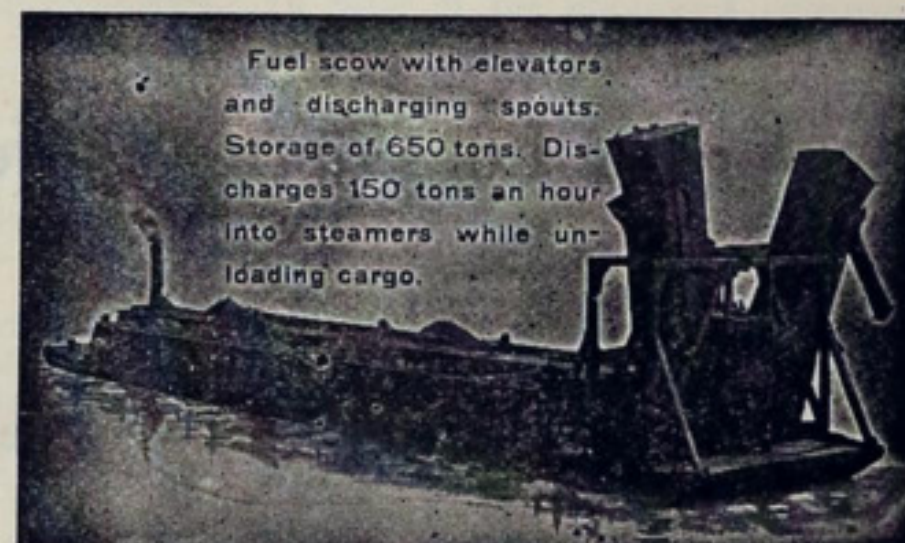
Carrying

Different

Grades

at all

Times.



M. A. HANNA & CO., Miners and Shippers. Main Office, Perry-Payne Bldg., Cleveland.

U. S. Engineer Office, Galveston, Tex., May 15, 1899. Sealed bids, in triplicate, for deepening channel from Galveston Harbor to Texas City, Tex., will be received until 2 p. m., June 15, 1899, and then publicly opened. For information apply to C. S. Riche, Capt., Engrs. June 8.

U. S. Engineer Office, 185 Euclid Ave., Cleveland, O., May 9, 1899. Sealed proposals for dredging in Cleveland Harbor, Ohio, will be received here until 2 o'clock, p. m., standard time, June 9, 1899, and then publicly opened. Information furnished on application. Jared A. Smith, Col., Engrs. June 1.

U. S. Engineer Office, 57 Park St., Grand Rapids, Mich., May 11, 1899. Sealed proposals for repairing government piers at Grand Haven, Mich., will be received here until 3 p. m., June 10, 1899, and then publicly opened. Information furnished on application. Chester Harding, Capt., Engrs. June 8.

U. S. Engineer Office, 57 Park St., Grand Rapids, Mich., May 15, 1899. Sealed proposals for repairing government piers at Muskegon, Mich., will be received here until 3 p. m., June 14, 1899, and then publicly opened. Information furnished on application. Chester Harding, Capt., Engrs. June 8.

White Pine! White Pine! White Pine!

THE ONLY PERFECT WOOD FOR

SPARS, DECKING,

—OR—

OTHER SHIPBUILDING PURPOSES

10,000,000 FEET OF LOGS, } **IN STOCK NOW.**
25,000,000 FEET OF LUMBER, }

Norway Logs up to 100 feet, suitable for PILING, BOOMS or DERRICKS,
ALWAYS ON HAND.

The Following Testimonials are Taken from Dozens on Our Files:



ADDRESS ALL BUSINESS COMMUNICATIONS TO THE COMPANY.
Cleveland, O. Dec. 22, 1898.
Cleveland Saw Mill & Lumber Co.,
City.

Gentlemen:-

We take pleasure in recommending your firm to any one
requiring prompt delivery and good grades of ship building material.

Very truly yours,

The Globe Iron Works Company,

R. L. Ireland
Vice President.

THE CLEVELAND SHIP BUILDING CO.

OFFICE NO 120 VIADUCT.

One Distance Building

Cleveland, O. Dec. 21, 1898.

Cleveland Saw Mill & Lumber Co.,

City.

Gentlemen:-

We are pleased to state that we have purchased from you during
the past ten years, many thousand dollars worth of decking, spars and
other ship building material, which we have found satisfactory in
every respect.

Very truly yours,

The Cleveland Ship Building Co.,

By *R. White*
Secretary.

Cleveland Saw Mill & Lumber Co.,

CLEVELAND, OHIO.